



THE PERCEPTION OF GERMANY'S 'ENERGIEWENDE' IN EMERGING COUNTRIES

PART 2 – RESULTS OF
QUALITATIVE INTERVIEWS WITH
EXPERTS IN RUSSIA AND INDIA



Konrad
Adenauer
Stiftung

THE PERCEPTION OF GERMANY'S 'ENERGIEWENDE' IN EMERGING COUNTRIES

PART 2 – RESULTS OF
QUALITATIVE INTERVIEWS WITH
EXPERTS IN RUSSIA AND INDIA



TABLE OF CONTENTS

- 1 Introduction 3**
 - 1.1 Putting the results in context 3
 - 1.2 About the study 7
 - 1.3 Summary of the results 7
- 2 Perception of Germany’s Energiewende 9**
 - 2.1 Content and goals 9
 - 2.2 Contextualising the results 13
 - 2.3 Sources of information 16
- 3 Assessments of the Energiewende 17**
 - 3.1 Positive aspects 17
 - 3.2 Negative aspects 23
 - 3.3 Political implementation 29
- 4 Energy policy triangle 33**
 - 4.1 Security of supply 33
 - 4.2 Environmental aspects 36
 - 4.3 Economic feasibility 39
- 5 Local energy policy 43**
 - 5.1 Developments in Russia 43
 - 5.2 Developments in India 49
 - 5.3 Consequences of Germany’s Energiewende for Russia 52
 - 5.4 Consequences of Germany’s Energiewende for India 58
 - 5.5 Transferability of Germany’s Energiewende 63
- 6 The outlook for Germany 69**
 - 6.1 Competitiveness 69
- 7 Appendix 77**
 - 7.1 Participants 77
 - 7.2 Script for structured interviews 78
 - 7.3 Overview of surveyed countries 80

1 INTRODUCTION

1.1 PUTTING THE RESULTS IN CONTEXT

This study examining how Russia and India perceive Germany's Energiewende (energy transition) is the culmination of a two-part research series commissioned by the Konrad-Adenauer-Stiftung (KAS). Aiming to identify the impact of Germany's Energiewende on international development policy, KAS decided to analyse the group of emerging countries known as the BRICS – Brazil, Russia, India, China and South Africa. As far back as 2001, observers identified the BRICS, originally known as the BRIC nations before the inclusion of South Africa, as countries with high-growth potential. In addition to the influential role of the BRICS in economic policy, which recently resulted in the establishment of their own development bank, they are also key players in climate and energy policy, both as consumers and suppliers of energy. As a result, the BRICS have a high profile as new global powers in less developed countries and have achieved rapid economic progress that can serve as an example to these countries.

At the same time, the energy supply systems of the BRICS have a major impact on the global climate. China currently has the highest level of carbon emissions worldwide. The BRICS must therefore address the question of how to meet their growing energy needs in the long term. The process of answering this question has already made one point very clear: these countries will need more than fossil fuels in the future. In light of this, they are paying close attention to how other nations are finding alternative ways to supply energy. Germany's Energiewende plays a key role here. Close bilateral ties already exist between Germany and the BRICS on energy and climate issues. In addition, Germany is one of the world's leading industrialised countries to set itself a target of switching almost entirely to renewables by 2050. The results of the first part of the study,* which included Brazil, China and South Africa, already indicated a keen interest in developing technological partnerships, particularly with regard to exploiting renewable energies and improving energy efficiency.

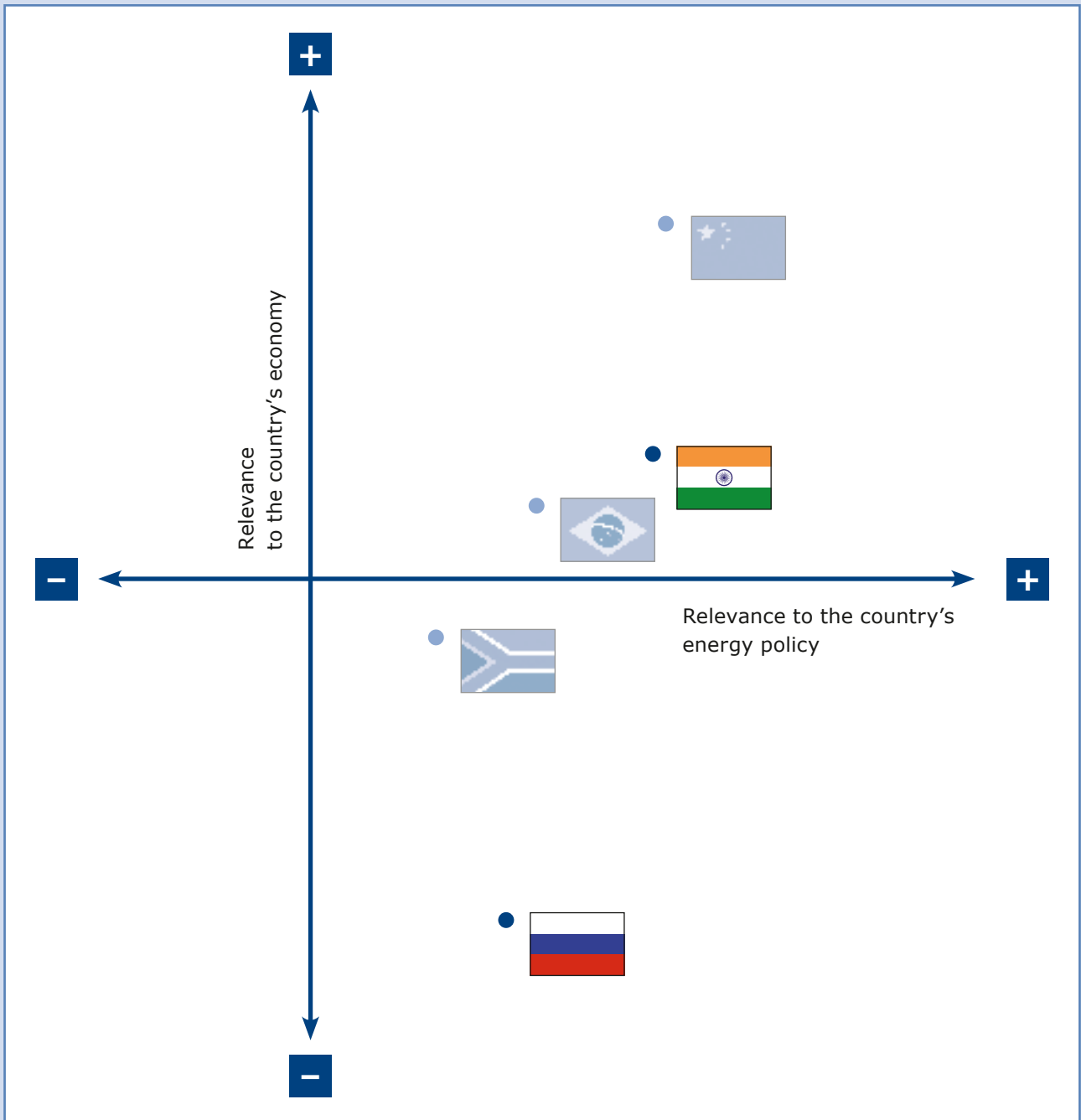
* "The Perception of Germany's 'Energiewende' in Emerging Countries – Results of Qualitative Interviews on Germany's Transformation of the Energy System in Brazil, China and South Africa", 2014, Konrad-Adenauer-Stiftung e. V., Project coordination: Christian Hübner, <http://www.kas.de/wf/de/33.34940>.

The results of this study on the perception of Germany's Energiewende show some parallels between Russia and India. On many points, however, the opinions of Russian experts differed greatly from those of their Indian counterparts due to Russia's key geopolitical role as an energy supplier. The experts surveyed in Russia and India mainly viewed the German Energiewende as a programme to expand the use of renewable energies and phase out nuclear power. They believed that Germany's main goals are to become less dependent on energy imports and to protect the environment and climate. Russian experts saw the Energiewende as a logical step towards cutting energy imports in the long term. They also viewed Germany's approach as a strategic decision to boost its political and economic independence and believed that a successful Energiewende in Germany poses risks for Russia: namely, that it would lose an export market in the long term. For experts from India, however, the Energiewende symbolised an extraordinary move, while also being viewed as an expression of political resolve and responsiveness to the majority in German society. Experts from both countries viewed the high costs and the high risks to the security of energy supply as problematic.

Respondents from India and Russia, like those previously surveyed in Brazil, China and South Africa, hoped to learn from Germany's experiences as it undergoes its Energiewende and believed that technology transfer in the areas of modernisation and diversification will play a key role in helping them in their own efforts. In their opinion, it would not be sensible to copy the German model. The respondents did believe, however, that Germany's Energiewende could be used as a benchmark for expanding renewable energies and boosting energy efficiency, and that Germany would benefit economically from its Energiewende in the long term.

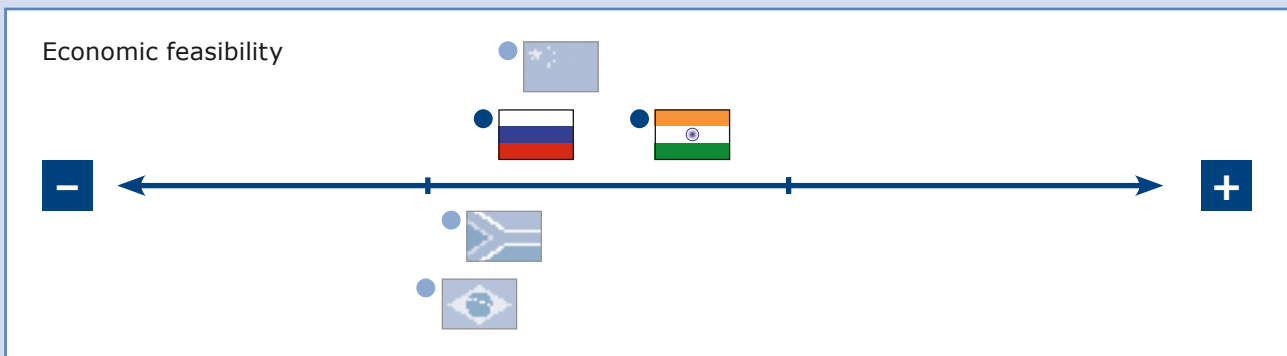
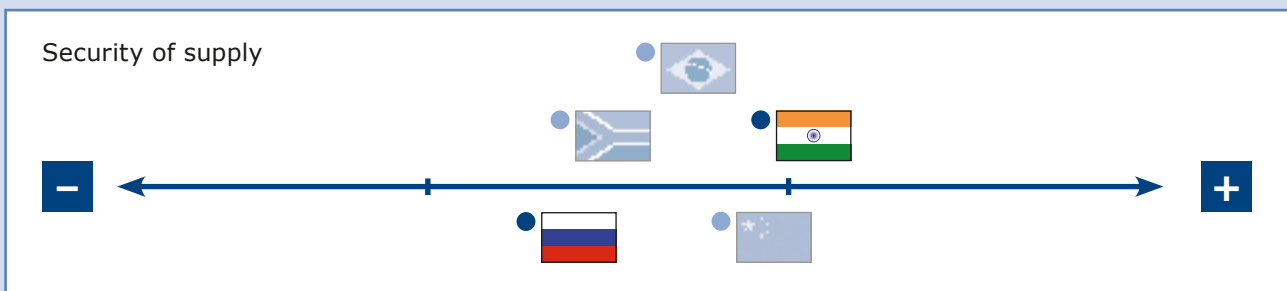
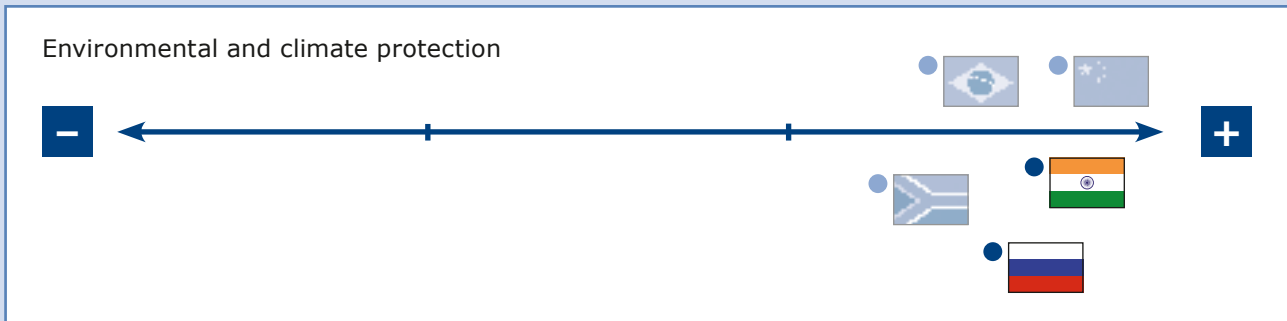
From a development policy perspective, it makes sense for Germany to cooperate closely with the BRICS nations on an equal footing to ensure that their energy supply systems become more climate-friendly. The implementation of the Energiewende in Germany will play a major role in this process. Germany is currently on a learning curve, which can benefit many countries worldwide. The goal here is not for other countries to copy the German Energiewende, but rather to spread in-depth knowledge of the regulatory, technological and political solutions Germany has already put into place to facilitate its Energiewende. If the BRICS manage to integrate parts of these solutions, this may also enable them to find sustainable ways to address their rapidly growing energy needs from a climate perspective. This will not only have a positive impact on the global climate, but will also help build bridges to less developed countries that model themselves on the BRICS.

Level of openness to integrating individual elements of the German Energiewende by country



Qualitative assessment based on the results of the surveys

How the goals of the Energiewende are perceived by country



Qualitative assessment based on the results of the surveys

1.2 ABOUT THE STUDY

This study was conducted by infratest dimap on behalf of the Konrad-Adenauer-Stiftung. The contents and structure of the expert interviews were determined in collaboration with the specialists at infratest dimap, based on input from earlier workshops.

From November 2013 to March 2014, a total of 54 telephone interviews were conducted in Russia and India using a prepared script. The interviews were carried out by local research institutes, with infratest dimap serving as the lead German institute. The qualitative structured interviews, whose results are not representative, were recorded, transcribed and translated into English. Respondents' statements are given in their original form and have not been edited. The target groups included experts from business, politics, public administration, science and civil society who were informed about Germany's Energiewende. The survey in Russia was completed before the escalation of the crisis in the Ukraine, and thus does not address the possible implications of the crisis and its aftermath for energy security. This study is based on the report prepared by infratest dimap (see Chapter 7, Appendix).

1.3 SUMMARY OF THE RESULTS

Russia's and India's perception of the German Energiewende differed significantly in several respects. While experts in India had a similar perception of Germany's Energiewende to those previously surveyed in Brazil, China and South Africa, the results of the survey in Russia can largely be explained by its role as a global supplier of fossil fuels. Both Russia and India mainly viewed Germany's Energiewende as a programme to expand the use of renewable energies and phase out nuclear power. Both countries believed that Germany's aim is to become less dependent on energy imports and to promote climate protection. Russia saw the Energiewende as a logical step for Germany to strategically improve its energy security in the long term. It also believed that Germany is taking this approach with a view to boosting its overall political and economic independence. India, on the other hand, saw the Energiewende as an extraordinary move and viewed Germany as a global pioneer with all the responsibilities that this role entails. Both countries pinpointed the higher costs and less energy security as short-term risks of the Energiewende. Russia feared that it will lose an export market for its fossil fuels. India furthermore thought that the Energiewende was an expression of political resolve and responsiveness to the majority in German society. There was also the view that Germany's Energiewende could be used as a benchmark to demonstrate how fossil fuels and renewable energies can be used effectively side by side. Both countries hoped to learn from Germany's technologies in order to help modernise and diversify their own energy supply systems.

2 PERCEPTION OF GERMANY'S ENERGIEWENDE



2.1 CONTENT AND GOALS

Perception of Germany's Energiewende as a programme to expand the use of renewable energies and phase out nuclear power – with a view to cutting dependency on energy imports and boosting environmental and climate protection

- Russia and India mainly viewed Germany's Energiewende as a programme to **expand the use of renewable energies** and **phase out nuclear power**. Boosting energy efficiency was less frequently cited as a motivation for making the transition: just under a third of the Russian and a fourth of the Indian experts thought that improving energy efficiency was a key factor in the Energiewende. Like those surveyed in Brazil, China and South Africa, respondents in Russia and India also rarely connected efforts to foster innovation in the transport and mobility sector and to implement modernisation schemes to make buildings more energy efficient with Germany's Energiewende.
- There was broad consensus among experts in both countries with regard to the **goals of the Energiewende** in Germany. Like those surveyed in Brazil, China and South Africa, experts in Russia and India believed that Germany's Energiewende aims to **improve environmental and climate protection, reduce dependency on energy imports** (thus enhancing political energy security) and **generate economic benefits**, such as boosting the competitiveness of the German economy. However, Russian

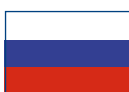
"Additionally this transition will definitely lead to the state energy independence from other countries."

*Business representative,
Russia*

and Indian experts differed greatly in the emphasis they placed on each of these goals. In Russia, the perception of the Energiewende was clearly influenced to a large extent by its energy ties with Germany and its concerns about the implications of this transition. Russian experts believed, for example, that Germany's main interest is in reducing energy imports and saw improving environmental and climate protection as a secondary aim. This view was particularly prevalent among experts from business, public administration and politics. Indian experts, on the other hand, presumed that Germany's decision to switch to renewables was primarily motivated by environmental and climate protection concerns.

Cutting dependency on energy imports

Germany becoming less dependent on energy imports



Russia

- "Additionally this transition will definitely lead to the **state energy independence** from other countries." (1.2 Business)*
- "First, Germany does not possess energy materials of its own and it **is importing these from other countries**, including Russia. Should we recall to the recent problem, where gas transportation via Ukraine was suspended and the whole Europe was staying with no gas, this **makes a serious issue.**" (1.2 Business)
- "They have a **single goal and objective**. Since they have no hydrocarbons of their own and they are dependent of these, they have to **leave from purchasing gas and oil from Russia** and other supplier countries." (1.2 Politics)
- "If I should think like a German, I have to note that this means energy security for Germany above all, **independence from energy materials imported from other countries, e.g. Russia [...].**" (1.2 Politics)
- "The key goal of this transition is **gaining independence from the Russian energy materials**, gaining the chance to meet its energy needs using its own resources, as well as to save funds which are due to be paid for the imported fuels." (1.2 Administration)
- "First, this is about security, second less expenditure on energy sources, as European countries to very **great extent are dependent on import of energy materials.**" (1.2 NGO)
- "[...] this measure is to **reduce the import of energy materials**, which are getting more and more expensive every year [...]." (1.2 NGO)

* The abbreviations at the end of the quotations relate to the questions and to each group surveyed. You can find an overview of these on page 78. Respondents' statements are given in their original form and have not been edited.

- “Germany quite a bit like India is **extremely dependent from importing energy** from outside countries whether it be gas which it imports to a large extent from Russia, and coal which is also imported. Since Germany is dependent from primary energy from other countries; there is a huge issue of energy security which needs to be managed.” (1.2 Business)
- “From my point of view, the purpose of the Energiewende is to fight for clean energy i. e. against climate change, for **reducing energy import** and extending the energy security.” (1.2 NGO)



India

Boosting environmental and climate protection

Environmental and climate protection, cutting carbon emissions

- “If we regard it from point of view of the government, there is certainly a great deal of benefits the renewable energy resources may offer [...]. First of all these energy sources **are environmentally friendly, i. e. they produce no polluting emissions.** They are not dangerous, like e. g. nuclear power stations.” (1.2 Business)
- “First, this project focuses on **environmental aspect.** We don’t only need to talk about it, but we have to do something in this direction as well.” (1.2 Administration)
- “Germany has only coal of its own, i. e. the only fossil fuel, not even of superb quality, not environmentally friendly, and this does not fit with the environment concept of efficacy, which is currently effective in EU.” (1.2 Administration)



Russia

- “So a country like Germany is basically looking to become more energy secure and they do **not want to do it at the cost of the environment** [...]” (1.2 Business)
- “I think Germany has been taking a huge leap in that direction in terms of being far more **responsible towards environment, towards its future generation,** and of course in terms of overall dependence and reduction of carbon dioxide emissions which also makes commercial sense.” (1.2 Business)
- “Worldwide the moment of global warming cuts down the fossil fuel use so that carbon emissions are reduced. For that purpose every country especially industrial countries, a lot of countries in Europe **who have polluted the world a lot feel larger obligations** [...]” (1.2 Politics)



India

- “There is so much more to learn from Germany in terms of political realism and when it comes to the interest of the country. They have **political fronts united on the front of environment security** and thus Germany is able to take such a big step on switching to renewable energy completed in coming years.” (1.2 Politics)
- “The objectives are very much obvious to having a **cleaner and safer environment and since Germans have polluted the environment it’s time to give back.**” (1.2 Politics)

Reducing risks by phasing out nuclear power



Russia

- “Of course, nuclear power is the cheapest, but we should **not forget about environmental risks.**” (1.2 Politics)
- “They have posted a very good and detailed description of what is currently happening in Japan after Fukushima catastrophe, and steps are to be taken to **minimize risks related to using nuclear powered plants.**” (1.2 NGO)



India

- “It is good actually, we think, because after the Japanese faced the nuclear catastrophe and after some problems in Japan, this energy transition like renewable energy, wind and solar, I think it is best. Because there is **no worry, there is good safety.**” (1.2 Science)
- “I believe that originally when this transition was planned, it was not anticipated that nuclear energy will also be phased out simultaneously. But then after Fukushima they have also incorporated that as part of the plan.” (1.2 Administration)
- “However, the desire to shift to renewable energy to a major extent has been driven by climate change issues and **safety concerns in nuclear,** emissions from coal. All those issues combined gave a push for renewable energy.” (1.2 NGO)

Germany's leading role

- "Germany is a leader in the global economy, and the fact that it aspires to **maintain this economical leadership**, is making Germany to give up atomic energy and transit to this 'green' type of energy." (1.1 Business)
- "Through reconstruction of its energy supply system, Germany aspires to get free from external energy dependence and gain leadership in the world market of energy-efficient and renewable technologies. [...] Germany's planning to **use all the benefits of this 'pioneerdom'**, and when the entire world comes to switch over to the renewable energy sources, Germany will be already the largest supplier of quality technologies, specialists and services in this area." (1.2 Administration)



Russia

- "In fact I would say that **they are the king of renewable energy** and in fact whatever they have thought or they have planned that is acceptable globally because they dare to think in those terms which no other country has thought." (1.2 Administration)
- "Germany has always been a **pioneer in having new technologies** it has always thought of the future and so it is today one of the leading economies in the world." (4.2 Politics)



India

2.2 CONTEXTUALISING THE RESULTS

Russia: Energiewende = logical and appropriate decision;

India: Energiewende = extraordinary, ambitious step

- The overriding majority of **Russian experts** did not view the German Energiewende as an extraordinary step, but rather as a **logical and appropriate decision**. They particularly pointed to Germany's dependency on energy imports and the limited reserves of fossil fuels. They maintained that these factors have made the restructuring of the German energy supply system unavoidable. In view of the limited supply of fossil resources, they believed that other countries will have to follow suit sooner or later. In their opinion, the German Energiewende will pay off economically in the long term. Only one Russian expert from public administration saw the German Energiewende as an extraordinary step due to its ambitious goals. Two of the experts were critical, stating that they did not understand Germany's decision to abandon traditional forms of energy nor believed it made sense.

"Germany has set the example for everyone to follow."

*Business representative,
India*

- Opinions **in India** on this issue differed greatly from the views of Russian experts. Most experts in India saw the German Energiewende as **extraordinary**, particularly emphasising its ambitious goals. Indian experts believed that the Energiewende is setting benchmarks worldwide and motivating other countries to give serious thought to restructuring their energy sectors. While some experts pointed out that other countries are pursuing concepts similar to the German Energiewende, they acknowledged that Germany is implementing its transition at an unusually quick pace. Only one business and one politics expert said they viewed the Energiewende as a necessary rather than extraordinary step.

A logical and appropriate decision



Russia

- "This is a **normal and logical step**. Just have a look at what's going on the world: they manufacture energy-saving mobile phones, lamps, hybrid type cars, the accent is made on reduction of energy output ratio. For me this is a very appropriate undertaking and I wish Russia looked for to undertake this as well." (1.4 Business)
- "This is an **inevitable step, and every nation is going sooner or later** to undertake a transition like this." (2.1c Politics)
- "I consider this energy transition to be a very logical step. **All the nations should give up using nuclear power** to diminish the potential catastrophes and their aftermath Japan has recently faced." (2.1c Politics)
- "I regard this decision very adequate and logical. **I wish more nations came to making such a decision**. It's because the renewable energy sources are what they are called – renewable. According to specialists' forecasts, the coal fields of the Earth are going to completely exhaust within between 30 and 40 years, oil – within the next 50 years." (2.1c Politics)
- "This transition is a totally normal and a logical step. If people thoroughly analyze the state of their economy, energy sector, look for and find the ways of **energy expenses reduction, this is naturally, very much logical**." (2.1c NGO)
- "This is a normal and logical step for Germany. It's because **Germany is very precise, punctual, smart** and they will manage to sort out all the pluses and minuses [...]" (2.1c NGO)

- “It is a kind of a compulsive development because after the UNFCCC and after a lot of issues of climate change and also because of the fact that Europe does not have that much gas and fossil fuels. We see it as **more of a kind of a necessity than as a kind of a luxury.**” (2.1c Business)



India

An extraordinary, ambitious step

- “The German government has set quite an ambitious goal – make the renewable energy resources a key source of power. One can certainly say this is something **really extraordinary, since there have been no such global changes in energy policies** not only in Germany but also in other countries before.” (2.1c Administration)



Russia

- “I think it is **very extraordinary.** It started in some other countries as well, but Germany suddenly started and then they put it in a such a high speed and then immediately after, you know, few years after this whole thing started, they came out with almost like a saturation level.” (2.1c Business)



India

- “I mean what Germany has been doing is extraordinary; they have **set the benchmark for the whole world.** There is no doubt about this. They have set the example for everyone to follow.” (2.1c Business)
- “See, I could think it is a bit extraordinary. Because, here is a country which is technologically advanced, which is a developed country which is taking upon itself this added responsibility of completely changing the manner in which its energy business was structured, its energy industry was structured going through all these shocks, going through all this pain to be able to create a much more stable, sustainable and environmentally conscious structure, which would not only help itself now, but for its future generation. So, if **it is showing that political will, which is unfortunately missing a lot in our country.**” (2.1c Business)
- “We would not term this as an extraordinary development but we would definitely **applaud them for taking such a bold decision towards the welfare of the human community.**” (2.1c Politics)
- “It is extraordinary, absolutely extraordinary. One of the reasons is the ambition. [...] The second reason that it is good is that it **challenges the rest of the world to thinking seriously whether the business as usual is the right way to go ahead** with the energy development.” (2.1c Administration)

- “No, this is extraordinary. This is extraordinary because you need a **lot of courage, you need a lot of character, you need a strong political** will that you can do it.” (2.1c Administration)
- “Well, it is not really normal development because **nothing like that is happening elsewhere**, so in the sense I think it is quite extraordinary.” (2.1c Science)

2.3 SOURCES OF INFORMATION

Where the experts get their information: the internet and peer-to-peer contact

- Most of the experts in Russia and India have become aware and gained knowledge of Germany’s Energiewende through their work or their interest in the field. Online publications and personal exchange of information between colleagues were particularly important here.
- In both countries, **online resources** such as news portals, blogs, the websites of companies and organisations, and specialist articles and studies published on the internet, are among the sources of media information used by experts from all areas to inform themselves about the Energiewende. While experts also make use of **traditional media**, such as print, television and radio media, these sources play a less significant role than information published online.
- **Peer-to-peer contact** enables a varied dialogue. This includes discussions on specialist topics with colleagues, as well as congresses, international conferences and symposiums. This kind of contact is somewhat more important in India – where over half of the experts gain their information through personal contact – than in Russia, where only around a quarter of the experts exchange information with peers. Almost a quarter of both the Indian and Russian experts were able to learn more about the Energiewende **in person by visiting** Germany.
- In certain sectors, formalised forms of exchange are also important sources of information. Indian experts from public administration, for example, cited the Indo-German Energy Forum, which was founded by Angela Merkel and Manmohan Singh.

3 ASSESSMENTS OF THE ENERGIEWENDE



3.1 POSITIVE ASPECTS

Big pluses from the Russian perspective: environmental aspects and economic advantages

- There was consensus among Russian experts that Germany's Energiewende can play a significant role in solving environmental problems. They viewed **environmental aspects** as a major plus point of the Energiewende. In addition to cutting greenhouse gases and mitigating climate change, these also included improving people's health and preserving their living environments. Some experts also saw **the nuclear phase-out** as a further advantage of the Energiewende, particularly those working in NGOs. This view was not shared, however, by business representatives. The need to ensure energy security was mentioned as an especially important factor here.
- Russian experts also expected the **development of renewable energies** to have a beneficial impact on the German economy. Although Russian oil and gas imports are primarily used to generate heat and not to produce electricity, half of the Russian experts assumed that the German Energiewende was causing a drop in oil and gas imports, allowing Germany to cut its spending. A few experts from business and politics believed that German products may become more competitive in the long term as a result of lower energy costs.

"Self-cost of German products due to the cheap energy sources, will go down and certainly, they will make more competitive in the world business market."

*Political representative,
Russia*

- Russian experts also believed that Germany will benefit from the transition as it will be able to reduce its dependency on other countries, such as Russia and the Gulf states. They expected the Energiewende to bring Germany not only economic advantages, but also greater **political independence** and greater **political security of supply**.
- Russian experts took a positive view of the **new technologies** being developed to enable the Energiewende – particularly those from science and public administration. They believed that Germany can play a **pioneering role** here, which can benefit all countries while also bringing economic advantages to Germany – if it sells its technologies to other countries, for example. A few experts expected this to have a beneficial impact on **labour market policy**. Experts from public administration, for example, believed that the creation of new jobs could also offset personnel cutbacks in the nuclear industry.

Benefits from the Indian perspective: a model for others, energy efficiency and environmental aspects

- Experts from India also viewed **environmental aspects** – especially cutting emissions and global warming – as key elements of the German Energiewende that will have a beneficial impact on people’s quality of life. One expert from each group cited the **nuclear phase-out** as an advantage of the Energiewende.
- Experts took a very positive view of efforts to boost **energy efficiency**, realise energy savings and generally reduce dependency on particular energy sources. This point was particularly important for business representatives and undoubtedly played a far greater role in India than in Russia due to India’s growing energy needs and power shortages. As in Russia, Indian experts attached great importance to **technological developments**. They also expected that these developments will have a positive impact on certain areas of the German labour market.
- A key point for experts in India was the potential of the German Energiewende to **serve as a model**. They believed that Germany is paving the way and that other countries can benefit from this. Examples cited here included the Renewable Energy Act (EEG), which set solar feed-in tariffs and was adopted by numerous countries. They also believe that India is already reaping the rewards of Germany’s commitment in this area, which in their opinion has brought about a fall in the cost of solar power. Furthermore, they praised the Energiewende for setting a positive example and allaying fears about the feasibility of integrating renewable energies into the grid.

- In addition, representatives from business and environmental organisations expected the Energiewende to have a positive impact on Germany's **political security of supply**. Experts in India made far less reference than Russian experts to the potential for Germany to reap economic benefits from savings generated by switching to renewables and forgoing energy imports.
- Experts from public administration praised Germany's **ambitious goals**, which in their opinion are a prerequisite to achieving the necessary developments in technology. Furthermore, experts from environmental organisations highlighted how the German Energiewende fostered a high level of **social mobilisation and participation**.

Comments on environmental aspects and economic advantages

Helping to solve environmental problems

- "[...] is the **environment protection, the planet life preservation**, i. e. to minimize the damage to environment and human's health and life." (1.2 Politics)
- "This is within the **policies of responsibility for the future** which requires – should it be technologically and economically doable – decision making in favor of the new form of power supply." (2.1a Business)



Russia

- "You can see global warming etc. have been an issue these days and now its high time and so you can say this is more a **need of future survival and better living**, it's the right way to move forward." (2.1a Politics)
- "[...] of course there are other social benefits because there is a **clear link with the health of the society based on the kind of energy that they use.**" (2.1 Administration)
- "First is **responsibility for the future**. Germany is a responsible country or a country of responsible citizens, they do think about responsibility for the future. This takes into account the interest of our children, grandchildren, it means that whatever technological and economically feasible, it is our duty today to choose an alternative form of energy supply." (2.1a NGO)



India

Economic advantages



Russia

- "Self-cost of **German products** due to the cheap energy sources, will go down and certainly, they will make **more competitive in the world** business market." (2. 1a Politics)
- "Its leaders believe that in the long run prospects the **renewable energy sources are going to be much less expensive** than the fossil fuels. I. e. the transition like that can result in weight economic benefit." (2. 1a Administration)
- "By the time when other countries come to start such an energy transition of their own, Germany will have managed making a monopolist in this industry. And naturally, switching to the renewable energy sources will lead, not complete though, but still to giving up oil and gas supplies, i. e. to **saving funds**, which will be able to be spent on some other needs of the national economy." (2. 1a Administration)



India

- "So once they make Germany completely depend upon renewable, it is inventory free, that means it is debt free. That means, I am not sure how much of barrels of oil and gas Germany itself is producing. It must be importing some part from other countries. And in the long run it will have a complete saving. **It may not be benefitted immediately, but in the long run Germany is a winner.**" (2. 1b Science)

A model for others



Russia

- "In this case Germany is paving the way, which is going to come useful to all nations. [...] everyone, **the entire humanity is going to benefit from what Germans will definitely develop** in terms of energy efficiency and resource-saving technologies, heating, illuminating for residential and commercial buildings." (2. 1a Science)

- “As a very important industrialized country, as a leading member of the developed world, obviously, one would welcome tips that Germany gives for moving from polluting sources of energy to non-polluting sources of energy. And of course the successes they achieve in shifting their energy base to renewable energy will **signal not only the developed world but the world at large what the prospects are.**” (2. 1a Politics)
- “In fact that provides I would say **inspiration to all others that renewable energy put into grid will not destabilize the grid.** So it says that you can manage it.” (2. 1a Administration)
- “So the change in energy policy that you are talking about is definitely beneficial. If Germany moves from non-renewable to renewable it will again **show a way to other countries** in Europe to start with and also to the whole world in particular. That will be coming.” (2. 1b Science)



India

Reducing dependency

- “[...] it will get free from energy dependence on other countries, which means it **is getting free from pressure, energy suppliers could apply** to it.” (2. 1b Politics)



Russia

Social mobilisation

- “As they have set a very, very high target for themselves, they have mobilized the society. So the positive aspect of the Energiewende is – more than what they have achieved – that **the society has been mobilized and is looking at renewable energy.** I did not meet anyone in Germany – and I travelled quite frequently – I have not met anyone who has a negative perception of the Energiewende. So I think the achievement of the Energiewende is that the society in Germany now thinks that renewable energy is possible.” (2. 1a NGO)



India

Technological progress



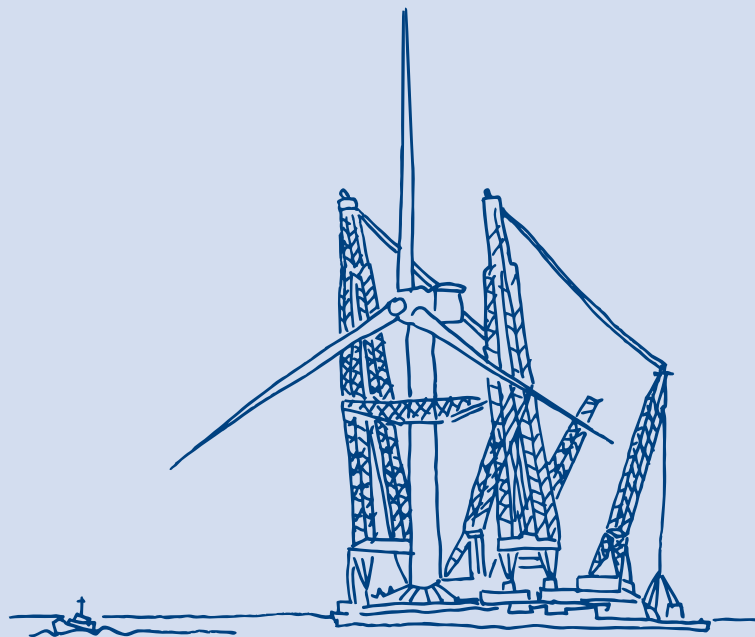
Russia

- “Positive effect is **that technologies for energy production using the renewable energy resources will be developed.**” (2. 1a Administration)
- “The energy transition will require new technologies to be developed, and **Germany is working hard in this direction.**” (2. 1a Administration)
- “[...] this means first, the **new technologies, which are going to be developed.**” (2. 1a NGO)



India

- “The Germans **are known for developing the technology** and they can keep the reputation across the globe whether it is automobile or engineering or defense technology.” (2. 1a Politics)
- “Positive aspects definitely are as a **world leader in technology** especially in wind and solar, this is one of the greatest strength of Germany. And so the cost becomes automatically affordable because it is locally made.” (2. 1a Administration)
- “One is the ambition of the goal. [...] Therefore it **creates the kind of thinking and the kind of technical work that is needed** in order to move forward.” (2. 1a Administration)
- “So by taking the leadership in such aggressive deployment we expect that again **Germany can help in improvement of technology** as well as of reducing the cost of renewable technologies and make it more at parity with general grade electricity.” (2. 1a Administration)



3.2 NEGATIVE ASPECTS

Disadvantages of the Energiewende from the Russian perspective: costs, volatility of renewable energies and loss of an important export market

- Russian experts viewed the **investment** necessary to restructure the German energy supply system as a serious disadvantage of the Energiewende. They anticipated considerable costs to build infrastructure, develop storage facilities and expand the grids (e.g. north-south transmission route). These points caused a few experts to express some doubt as to the feasibility of implementing the Energiewende from a technological perspective in the short term.
- The experts – in particular those from business and science – also believed that the **fluctuating availability of renewable energies** could be problematic. They expressed concerns that renewable energies would not be able to guarantee the **technological security of supply** and ensure a stable supply of energy to German industry. One business representative believed that coordinating volatile producers and individual consumption would be a major challenge.
- Other negative points highlighted by the Russian experts included the costs associated with the Energiewende and **rising electricity prices**. They particularly criticised the fact that “normal” consumers had to bear the brunt of the Energiewende. Less mention was made of the financial burden for industrial consumers. One of the experts from public administration believed that solar funding had particularly spiralled out of control and had a negative impact on other branches of industry.
- An advantage for Germany meant a disadvantage for Russia: Russian experts made a clear connection between the Energiewende and the **loss of an important market for oil and gas exports**, and viewed this development with great concern.
- There was heated debate on whether phasing out **nuclear power** was a sensible decision. Experts from the scientific community in particular saw nuclear power as a “clean” form of energy and viewed the decision to **phase it out** as **unwise** or premature. In light of Germany’s geophysical conditions and security standards, they believed there is little risk of nuclear-related incidents.
- Only a few experts pointed out the **negative impact on the environment**, such as the impact of wind farms on nature, animals and people, and agricultural land that is being used for solar energy and biofuel production instead of food crops.

“Some expenses or investments might make some negative aspect in this relation. Development of new technologies and building new kinds of facilities will require respective investments.”

*Science representative,
Russia*

Disadvantages of the Energiewende from the Indian perspective: costs, volatility of renewable energies and lack of cohesive international strategy

"The negative aspect is that there is an issue of inequity in the Energiewende which essentially means that proportionally the poor end up paying more than the rich. The rich gains and the poor lose."

*NGO representative,
India*

- Here, as in Russia, the experts viewed the **costs** associated with Germany's Energiewende as a significant drawback. They particularly pointed out the burden to private households, but made less mention of the financial impact and uncertain situation for industry.
- Like those surveyed in Russia, Indian experts viewed the **technical challenges posed by the fluctuating availability** of renewable energies, their integration into the grid and the coordination of production (in the north) and consumption (in the south) as major obstacles. Indian experts from politics, public administration and science believed that a key factor here is meeting the considerable storage capacity requirements.
- One NGO expert criticised the fact that the German Energiewende places too much emphasis on electricity production – particularly as heating accounts for a large share of Germany's total energy consumption.
- Unlike in Russia, a number of Indian experts pointed out that energy challenges were an **international problem**, which could not be solved by the German Energiewende alone. They believed it is Germany's responsibility to convince other EU countries and particularly the United States to enter into binding agreements on climate protection. Any debate on cutting greenhouse gas emissions that involves imposing restrictions on emerging economies such as India, China, Brazil and South Africa was viewed as unacceptable. As one Indian politician pointed out: highly developed industrialised nations such as Germany or Japan are in a position to bear the financial burden of the Energiewende, whereas developing economies are not.
- As in Russia, a few experts in India were critical of the Energiewende's detrimental **impact on the environment**, believed that phasing out nuclear power did not make sense, and that there was a risk of **job losses**, particularly in highly technical fields.
- Due to India's limited trading relations in the energy sector, the reduction in German energy imports was not a significant factor for Indian experts. They saw the reduction of Germany's dependency on imports as part of the Energiewende, but did not view it as detrimental to their country's economy. Nevertheless, an NGO representative in India shared the opinion of some Russian experts that the Energiewende will impact political dependencies and thus reshape the political landscape.

Costs/investment/rising electricity prices

- "And looking at what is currently going on I can see this undertaking turns out to be **much more expensive that it had been thought of before. Big damage has been made to different large companies**, which now require compensation on their losses."
(2.1b Administration)
- "The fact that **ordinary people suffer the most**, i.e. electricity tariffs are rising." (2.1b Administration)
- "This energy transition will require very **big investments to create new energy infrastructure**, but should Germany succeed in this, the given spending will be justified and will payback."
(2.1b Administration)
- "Interests of large industrial companies have been considered, and these corporations were exempted from payment of green electricity charges. As result, **only small energy consumers** – households and small businesses – **have paid for the 'Energiewende'**."
(2.1b Administration)
- "Some **expenses or investments might make some negative aspect** in this relation. Development of new technologies and building new kinds of facilities will require respective investments."
(2.1b Science)



Russia

- "The transition, what you call Energiewende, **no one expected it would be easy**. As I said, Germany has done it so far, much more is smoothly done any one could predict, **but it is not said to be cheap**." (1.2 NGO)
- "... it is possible but would mean **very high cost of power** which may **not be good for an industrialized country like Germany** and I am not sure how the industry would look at that, cost production would go up, **competitiveness would go down** so this is an important thing."
(2.1b Business)
- "The immediate negative aspect is that all the costs have been **loaded onto the consumer**. Energy intensive industry except, so the consumers have a huge cost. [...] So the second issue is most of the renewables are up in the North. The demand is in the south and therefore there is a need for developing power lines and that means additional cost." (2.1b Administration)
- "The negative aspect is that there is an issue of inequity in the Energiewende which essentially means that **proportionally the poor end up paying more than the rich**. The rich gains and the poor lose." (2.1b NGO)



India

Volatility of renewable energies



Russia

- “There are some **doubts about whether this transition can be possible** in terms of technological and economical implementation even for such a highly developed country like Germany? E. g. are these alternative energy sources going to provide uninterrupted power supply by insufficient wind force and solar light?” (2. 1b Business)
- “If we regard these new energy sources, we should admit **we are unable to fully rely on them to 100%**, i. e. we can’t be totally sure, we will manage to direct the energy of wind and that of the Sun radiation to some specific individual need. [...] I believe big risks are involved because of this **inconsistency**, as no one can be sure how nature is going to behave.” (2. 1b Business)



India

- “The electricity sector professionals who have a traditional background of power system management have still **not found totally satisfactory solutions how to deal with infirm nature of some of these renewables** in particular wind.” (2. 1b Administration)
- “[...] it is not the question about just replacing one unit of energy from fossil fuel by renewable, but you are replacing the dispatchable energy resource also by a variable resource. You may **not have complete control over when the energy is available** and that is going to be a very challenging aspect.” (2. 1b Administration)
- “I **doubt whether the entire power generation can be substituted by renewable energy**, because renewable energy has its own limitations. One is the **intermittency**, **second is the seasonality** and **third grid stability.**” (2. 1a NGO)

Nuclear phase-out



Russia

- “So this is a proper way, a very righteous way, however it should not in no way associated with the nuclear power. The **nuclear power does not have any impact either on environment or climate.** One thing does not have any connection to the other. It’s just all about fear. People are not properly explained what nuclear power is and what has been happening to Fukushima.” (2. 1a Politics)
- “A country like Germany **won’t do well without nuclear energetics.** It will either have to switch on the nuclear reactor or still bring in oil and gas.” (2. 1b Science)



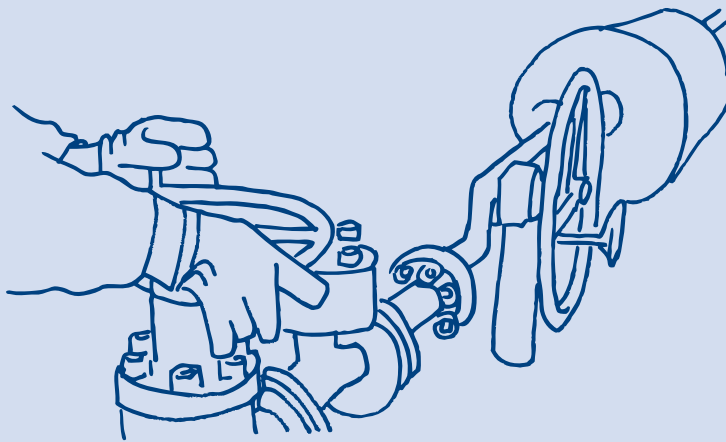
India

- “Renewables has to have a balancing mechanism and it is **only nuclear that provided a balancing mechanism** for renewables.” (2. 1b Business)

Loss of an important export market for Russia and lack of a cohesive international strategy

Reducing energy imports and dependency

- "It's **only the current suppliers who might find negative issues about such transition** of Germany, i. e. those who deliver gas and oil to Germany, i. e. Russia above all." (2. 1b Politics)
- "Well, first of all, should we turn to Russia, we are going to **lose one of the key importers**, and since our economy is based only on selling raw materials, this will **result in a real catastrophe.**" (2. 1b Politics)



Russia

- "If energy based on renewables increases in its own country, then **dependence on other countries reduces drastically** and this will have some effect. If you are taking oil from other countries that country always have some influence upon Germany. Suppose if you don't import from that country you do not longer depend from that country. So it has got **political and other aspects** as well. So that is one of the negative, we should analyze carefully, how much it is going to affect. This aspect need to be looked into." (2. 1b Science)



India

International problem



India

- "But to arrive at the international agreement which would have a positive effect on climate change, it's **necessary for Germany to persuade its fellow members of the European Union as well as the developed world in general** and the United States in particular to make firm binding commitments which would be multi-lateral in nature, so that countries like India are able to industrialize without having unreasonable restrictions placed on them. [...] I don't think it is reasonable to place restrictions on countries like India and China and Brazil and Russia and South Africa from emerging as significant players in the international economy scene by restricting their access to polluting energy." (2. 1a Politics)
- "Even if Germany converts 100 percent to renewable, this is **not going to solve the problem of the world** in terms of carbon emission. Germany has reached out already, or is reaching out or it would make sense to reach out to countries like India and China in future. This is an international issue. It is not limited to Germany, every citizen, everywhere understands this. If I clean up my air in Germany it doesn't help the neighbors." (2. 1a NGO)

Focus on electricity



India

- "An issue is that the focus is just on electricity. If you look at the Energiewende the focus is on solar and wind energy. It is not on heat. And if you look at the energy consumption pattern in Germany then 80 percent of energy is heat and 20 percent is electricity. Right now the focus of Energiewende is on electricity and not on heat." (1. 2 NGO)

3.3 POLITICAL IMPLEMENTATION

From the Russian perspective = strategic move to enable political and economic independence;
from the Indian perspective = expression of political resolve and responsiveness

- As with Brazil, China and South Africa, it was unlikely that experts in Russia and India would give a detailed **assessment of the German government's approach to implementing** the Energiewende. Only one Indian representative from an NGO addressed the German government's approach to implementing the transition directly, criticising the current CDU-SPD grand coalition for not being as proactive on the Energiewende as the previous governing coalition between the CDU and the FDP. Experts in both countries focused first and foremost on the **goals of the German Energiewende** and thus on the decision itself rather than the process of implementation.
- Some of the experts in **India** viewed the Energiewende as **proof of political resolve**; other experts also saw it as an **expression of government responsiveness** to the majority in German society. A number of experts specifically addressed the way the Energiewende was being implemented, pointing out that consumers were bearing the brunt of the Energiewende due to the uneven distribution of costs and highlighting the vital role of state subsidies.
- **Russian experts** viewed the Energiewende first and foremost as a **strategic move**. They believed that Germany's main goal is to achieve greater **economic and political independence** – particularly with regard to Russian energy imports. Experts from all sectors held this view. One representative from business and one from politics explicitly stated that the German Energiewende was motivated in no small part by a desire to reduce Russia's ability to exert political pressure. Various Russian experts believed that the Energiewende also aims to strengthen **Germany's leading position as an industrialised nation** and enhance its political image. A few experts viewed the Energiewende less as a strategic move and more as a decision motivated by electoral tactics: by responding to public pressure and making concessions on energy issues, the government was able to maximise votes.

"Germany has undertaken this in order not to be dependent on the Russian gas."

Administration representative, India

Political and economic independence



Russia

- “This is going to be a positive aspect for Germany, as they will become **independent from other countries** as fuel suppliers, and this is negative sign for us, i. e. as a supplier country **we are losing a purchaser, and we’re losing an effective lever of pressure on Germans.**” (2.2 Business)
- “This project is promising **political independence** to Germany from other states. Although Germany is a leader of the EU, this country depends on standard energy resources to great extent, and when it gets free from this dependence, it will gain more political independence.” (2.2 Business)
- “Politically Germany, as I have already said, becomes energy independent; accordingly **it’s getting hard to push on it, dictate it doing something** when resolving someone’s international political issues.” (2.2 Politics)
- “From a political point of view, getting more powerful of any state will result in **weakening of its neighbor lands.**” (2.2 Politics)
- “Well **Germany is sick and tired of the problems associated with gas transportation via Ukraine [...].**” (2.2 Politics)
- “Germany has undertaken this in order **not to be dependent on the Russian gas.**” (2.2 Administration)
- “When a country is not bound to a single type of energy resources, as well as the energy type, it’s purchasing from outside, this country always **feels free in its policies, both international and domestic.**” (2.1c Science)
- “Politically it’s evident, that Germany **aspires to be independent economically from fuel supplier countries.** We have already had to deal with several troubles, when we were about to face a crisis on the border of Russia, Ukraine and Europe, due to gas transportation matter.” (2.2 NGO)

Energiewende makes no political sense

- **“From political point of view, honestly, I don’t quite understand.** It is the evidence of **very strong influence of the green party in Germany** which is hustling about the environment, and these parties’ overbalance determines this forced energy transition in Germany.” (2.2 Science)
- “The governing party has advertised itself through this or gained some political capital, that’s all. [...] i.e. this is a political decision, made by the relevant political party. And I’m sure it has been done **contrary to the nation’s real interests.**” (2.2 Science)
- “I have an impression, that we see **some kind of excess.** To my mind the German government and public is subject to a **very high pressure from the environmental groups, i.e. the green,** [...] I sense perhaps some excessive enthusiasm of the environmental groups and the willingness to pay excessive price for the changes.” (2.2 Science)



Russia

Political resolve

- “Well, I think there is a **strong political** will actually and as a political process engaging industry, taking them along and giving them incentives to really beyond board I think that’s very favorable there. I think that is the difference between perhaps other countries and Germany where industry works so closely with the Government there. I think that’s why they perhaps stand out differently.” (2.2 Business)
- “One thing **I am very impressed with Germany in the political set up is** that the nuclear generation is a very attractive proposition because as I said generation of power through nuclear sources, I mean, you get a lot of power, but they have refrained from getting attracted to that and they **have stopped,** I mean, they decommissioned **a lot of their nuclear power plants.**” (2.2 Business)
- “I would say that **as such the German government in the last 7 years I have seen that everybody supports the renewable energy.**” (2.2 Administration)



India

Support from the population



India

- “In my opinion it is **societal aspiration that governs the political will.**” (2.2 Administration)
- “But I must say that the **people of Germany are very cooperative** with the government and they have taken the courageous step and they have **supported the government to do this.** [...] All goes to the people because they are all aware of the negative effect of climate change and the nuclear and knowing their negative effect, they have accepted this transition.” (2.2 Administration)

Grand coalition has become less ambitious



India

- “The **previous government was much more ambitious.** I know that there are concerns in Germany that this government is not as proactive on the Energiewende as the previous government was.” (2.2 NGO)

4 ENERGY POLICY TRIANGLE

4.1 SECURITY OF SUPPLY

Germany's security of supply questionable

- In the view of the **Russian experts** surveyed from business, politics and science, **Germany's reduced dependence on foreign energy imports** will have a positive effect on security of supply. One representative of an environmental organisation also considered the decentralisation of supply and diversification of the energy sector associated with renewables to be beneficial. Some experts – also mainly from environmental organisations – equated greater security of energy supply with a **mitigation of the risks arising from the phase-out of nuclear power**.

However, there were also **concerns as to whether security of supply can be guaranteed**, given the fluctuations associated with renewable energies and the technological challenges involved. Some experts were confident that Germany will succeed in addressing these problems. Others, meanwhile, held the view that such a **far-reaching transition to renewable energies is not possible**, and that Germany will for the foreseeable future continue to remain dependent on fossil fuels for energy. One-seventh of the Russian experts believed that it was too early to assess the Energiewende from the perspective of security of supply.

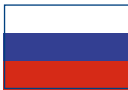
"It's too early so far to evaluate the potential energy security. We need time to see."

Administration representative, Russia

- **In India**, one-third of the experts surveyed considered **technological security of supply** in Germany to be guaranteed, or at least at a very high level. They regarded it as positive that energy production from fossil fuels is gradually being abandoned, and that any problems arising in the political process are being addressed. Here, as in Russia, the experts expected positive effects from the reduction in energy imports and the greater diversification resulting from decentralised production.

Five of the experts considered it too early to evaluate the success of the Energiewende as implementation has not yet progressed far enough. In India some experts were of the view that the Energiewende constitutes a **threat to security of supply** in Germany, too. Doubts were expressed as to whether it is possible to achieve the targets associated with the transition to renewables. A few experts considered an **energy mix comprising both renewable and conventional energy sources** to be necessary, while two of the experts believed that **grid stability** could only be achieved **in cooperation with other European countries**.

Positive effects



Russia

- "It will definitely **improve its energy security**." (2. 3a Business)
- "Germany will **not be dependent on outside fuel suppliers**." (2. 3a Business)
- "Everything they need they **will have available at hand** and they will don't have to bring in from outside." (2. 2 Politics)
- "I believe Germany is planning everything well enough and **it's capable of securing its energy supply**. [...]. I don't think the German energy security is going to be under threat." (2. 3a Science)
- "No doubt, if Germany really succeeds in the effective energy transition, this will have impact on its energy security. It will be then **independent from other energy sources it has to import from other countries**. It will to some extent get free from this energy source dependence, which is supplied from Russia or other countries, i. e. gas, oil, coal suppliers." (2. 3a Science)
- "This is certainly an important step, because **Germany is giving up such a dangerous thing as nuclear power**." (2. 3a Administration)

- “Who can forget the oil shock of the 1970s right? And on one fine day, because of political uncertainties, the Middle-East nations suddenly decided not to produce oil, or not to supply oil, or Russia stopped supplying gas. So these kinds of things do happen, and do happen with regularity. So **the countries that are able to decouple their own energy security from the supply of other countries would obviously take that step forward** in terms of managing their energy security. So I think it is a great step in that direction.” (2.3a Business)
- “That I would rate it **as quite high**, 8/10 because today we are seeing plenty of roof top solar and we are seeing a slow transition away from fossil fuels.” (2.3a Business)
- “Security-wise this is much **more secured** than the nuclear plant, so this is more less side-effective and less problem to the survival of humankind, mankind.” (2.3a Politics)
- “At a high level it seems that in terms of the security this would help because as part of the renewable energy deployment, you are going to use more and **more local resources.**” (2.3a Administration)
- “I think Germany imports about 80 percent of oil, I do not remember the figure, but something like that, so that is a **very high dependence on import** you know. So it means if anything happens say suppose a war or something and oil supply gets disrupted, then of course the whole nation is in problem. So Germany like India has got very low energy security at present, so the **energy transition will help.**” (2.3a Science)



India

Negative effects

- “To answer this question we need time, but I’m sure it’s **impossible to fully rely on these renewable energy sources.**” (2.3a Business)
- “It’s too **early so far to evaluate the potential energy security.** We need time to see.” (2.3a Administration)
- “On the other hand however, considering huge industrial power of this country, **it will still depend on gas, oil and coal.**” (2.3a NGO)



Russia



India

- “Yes, as I said all these non-conventional are not there to store, whereas they are to generate and consume. Coal and gas you usually can run when you want. Here whenever there is wind, whenever there is sunlight, they generate, so the consumption has to be linked with the generation whereas other gas and coal you can store, you can generate whenever you want. So we can't switch over 100 percent to non-conventional or renewable. We **need to have all these fossil fuel which should work as a base.**” (2. 3a Politics)
- “Well we know **what the taste of the cake is only after we ate it.** So, we have to see whether the transition being contemplated by Germany will actually be the path that they follow. If they successfully carry out their intentions it will be revolutionary for the entire world economy.” (2. 3a Politics)
- “But at the same time just based on my understanding of how the grids in Europe work I believe that **Germany cannot achieve this on its own.** E.g. if Germany has to cut off from rest of the European grid and manage it with this type of renewable penetration then they would not be able to do it.” (2. 3a Administration)

“Naturally renewables are all zero emissions, no green houses, no carbon emissions, so these are all desirable things.”

*Political representative,
India*

4. 2 ENVIRONMENTAL ASPECTS

- The Russian and Indian experts were virtually unanimous in their view that Germany’s Energiewende can be expected to have **positive effects from an environmental perspective.** In particular, they pointed to the lowering of greenhouse gas emissions and the reduction of water use for power plant cooling, as well as the avoidance of risks associated with nuclear power such as contamination in the event of malfunctions or disposal of radioactive waste.
- One Russian expert from business pointed out that although production of photovoltaic (PV) panels involves **materials that are harmful to the environment,** he considered the effects to be mostly positive. In India, some experts voiced concern that although Germany’s Energiewende is a laudable initiative, it **cannot solve the global problem.**
- Just one Russian scientist assessed the Energiewende **negatively with regard to environmental protection, regarding nuclear power as a more environmentally friendly energy source,** and feared that switching to renewables could have negative consequences stemming from wind turbines and PV systems.

The Energiewende makes an important contribution to environmental and climate protection

- “In terms of this, the transition offers even **more positive opportunities**, since the renewable energy resources suggest environmentally friendly energetics.” (1. 1 Business)
- **“This is a very positive aspect** related to this transition.” (2. 3b Business)
- “Positively, i. e. **no pollutants, no greenhouse gases, no radiation and contamination risks.**” (2. 3b Business)
- “It’s doubtlessly a very positive decision. This is to **reduce the ‘green house’ effect and polluting emissions into air, less nuclear wastes** involved either.” (2. 3b Business)
- “The transition to alternative energy sources will **reduce pollutions**. Well also **giving up using nuclear power plants**, to my mind, is the most important step, since we have already see the effects of the Fukushima and Chernobyl disasters.” (2. 3b Administration)
- “In terms of environment protection, this is **good not only for Germany, but it’s for the entire mankind’s good.**” (2. 3b NGO)



Russia

- “So from an **environment perspective I see it as a very positive**, the German move into renewables.” (2. 3b Business)
- “Naturally renewables are all **zero emissions, no green houses, no carbon emissions**, so these are all desirable things.” (2. 3b Politics)
- “One of course is the **reduction of greenhouse gas emissions** that is wonderful. Number two the **long term danger of nuclear power** of the nuclear waste is reduced. The third is because you are reducing energy demand, the environmental impacts of even fossil fuel generation like coal and gas is also reduced.” (2. 3b Administration)
- “So, **they are saving the world**. So, I hope it is a good environment protection. Every other country should follow this trend actually.” (2. 3b Science)
- “I think its **path-breaking** and it’s a good technique for the future.” (2. 3b NGO)
- “It is going to be **very, very advantageous and beneficial to the environment**. I mean to say your pollution level will come down. Your water use will reduce. There are lots of benefits that are going to happen. You carbon dioxide emission will come down. It will contribute to reducing global warming. There are huge environmental advantages.” (2. 3b NGO)



India

Concerns about environmental aspects



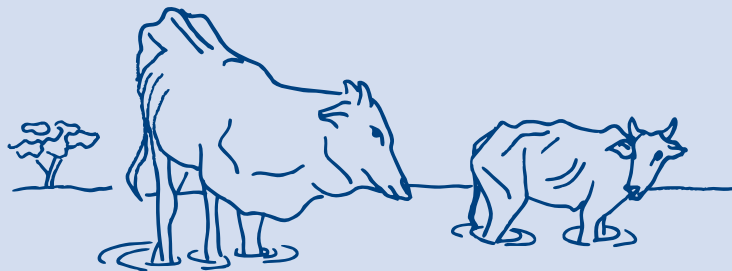
Russia

- “[...] However we still should remember, that quite harmful and contaminating materials and compositions are used in manufacturing of the solar cell panels, e.g. arsenic etc.” (2.3b Business)
- “Such a catastrophe, like that in Japan due to different geographical and seismological conditions is nearly excluded in Germany.” (2.3b Administration)
- “This **hardly will be of much help**, as **windmills kill many birds**. **Solar energy isn’t that environmentally safe** either. On the other hand nuclear power plants if treated and handled properly, do not harm environment much. **I can hardly find any significant benefit** about the transition in these terms.” (4.4 Science)



India

- “Environmental protection, it is very what you called relativistic question because environmental protection, what **we have done in 200 or 250 years cannot be corrected in the next 50 years**. Although I think, what I personally feel is that they have been doing great work and they are on course to actually achieving whatever targets they have set.” (2.3b Business)
- “Obviously once again what Germany proposes to do is an important national contribution to an international problem. But while Germany is an important member of the world economic community there are other members of the world economic community who have even greater cloud and who have not indicated that they would be following the German lead indeed even the European Union is to confirm whether they will follow Germany's lead. Also I commend the German lead but **I cannot say that it is a definitive answer to the world's problem.**” (2.3b Politics)
- “So unless every country has the attitude and will to reduce this carbon emission, of course there will some as a trend reduce in Germany but still **I think it is global...**” (2.3b Administration)
- “Environmental protection is excellent. Germany, the objectives are good, strategy seems to be on track, but at the same time **environment in Germany is not isolated.**” (5.4 NGO)



4.3 ECONOMIC FEASIBILITY

Costs of the Energiewende not undisputed

- There were differing opinions on the economic feasibility of the Energiewende among the experts surveyed. Around a third of experts in both countries believed that the Energiewende will be **profitable for Germany in the long run despite high start-up costs**. In Russia, the transition to renewables was considered to make economic sense in light of **rising oil prices** and the **high cost of energy imports**, among other factors. The **technological innovations** associated with the Energiewende were also seen as beneficial, as they are likely to lead to cost reductions in the long term. In India, a few experts pointed out that the costs of renewables, in particular those for PV systems, have already fallen significantly. They also assumed that the cost aspect has been carefully thought through, and that a leading industrialised nation such as **Germany has the capacity to complete the switch to renewables**.
- However, critics questioned whether renewable energies are more cost-effective in the long run. Some Russian experts from public administration were **sceptical as to whether the resulting rise in electricity prices is really a short-term phenomenon**. They objected that the transition has placed too great a burden on consumers. In India, too, the experts pointed out that **renewable energies are more expensive than conventional sources**, and that private end consumers have borne the brunt of the costs arising from the Energiewende, which in their view has also had an impact on Germany's budget deficit and industrial production costs.
- Some experts considered it too early to assess the Energiewende with regard to its cost-effectiveness, in part due to the **subsidies** currently in place.
- Two of the Russian experts from the scientific community believed that although the Energiewende is expensive, Germany's efforts are positive because they will be of benefit to all other countries as well.

"They promise that energy prices are going to lower after temporary rise, as soon as the system gets stable and adjusted and comes to pay back. However for some reason I don't much believe it."

*Political representative,
Russia*



Russia

- "This said breakthrough will certainly require huge investments. [...] But in terms of economic efficiency this undertaking **ultimately, should bring colossal revenues to the state.**" (2.3c Business)
- "They will initially have to make **very large investments, but finally this is going to pay off**, not earlier however, than in about 20 years. Is it worth waiting this long." (2.3c Business)
- "Germans are known to be very pedantic, accurate, who would never get involved in any kind of adventure without careful consideration. So if they still undertake transition like this, they have certainly calculated the feasibility. And **they have found this undertaking highly feasible.**" (2.3c Business)
- "Any **innovations should reduce future costs.**" (2.3c Business)



- "All the **renewable energies** appear to be **cheaper, than buying raw materials from other states.**" (2.3c Business)
- "It will still be justified in terms of economy. **Anyway fuel and electricity prices are going to get only higher.**" (2.3c Politics)
- "And the **less expensive energy resources** get, the **less will be self-cost of their products**, and thus – **better competitiveness, richer country.**" (2.1a Politics)

- **"Maybe for first couple of years they should have the energy cost slightly high,** but after that they should be able to, but anyway Germany gives a lot of incentives to power generation and industries, so **some part of the risk what you called the increased risk of cost to the consumer is absorbed by the government.** They do that, so consumer will not be burdened excessively."
(2.3c Business)
- **"But definitely I can say in a long run it would be cost effective."**
(2.3c Politics)
- **"Also if incentives are provided and subsidies I think cost should not be an issue in developed countries like Germany** where there would be so much public awareness as well."
(2.3c Politics)
- **"In short term it may cost you more but in long term it will offset all these costs and in future they will be much cheaper** than coal and nuclear. Initially they cost more."
(2.3c Administration)
- **"Affordability, see, Germany today is much more developed. They are the only country, probably, who has a positive rate of growth,** I mean not very large, but compared to other European countries. So, **they should be able to take the impact of the cost of energy transition."**
(2.3c NGO)
- **"So far, it has been successful. There might be a growing concern how much higher the electricity tariff in future would be, but I think it is a question of structuring the electricity tariff."**
(2.3c NGO)



India

- **"As for the economical compound of this project, any renewable energy type,** i.e. wind farms, solar panels **will cost much more,** than power generated through hydroelectric power stations, nuclear power stations or gas turbine stations. And this is going to be paid by consumers."
(2.3a Politics)
- **"They promise that energy prices are going to lower after temporary rise,** as soon as the system gets stable and adjusted and comes to pay back. However **for some reason I don't much believe it."**
(2.3c Politics)
- **"German leaders believe that energy generated using the renewable energy resources will be less expensive in a future, although it's hard to believe at the moment, because the electricity tariffs have been only growing since recently.** They are counting on innovative technologies of energy-efficiency preserving however previous productivity. This might reduce production expenses of industrial companies and increase their competitiveness."
(2.3c Administration)



Russia



India

- “For energy efficiency, for energy productivity in the short term, it is **not good because of the cost**, but in the very long term, it may be good.” (2.3c Administration)
- “See the real problem is as far as industries are concerned, as far as those people who can pass on the extra cost as a pass through, they are not bothered, it doesn’t affect them. But **for fixed income groups in society, for pensioners for example or fixed wage employees, etc., it will hurt them a little more** than it should because as I said I expect tier to go up.” (2.3c Administration)
- “As incomes are so high in Germany, the cost of the Energiewende is not hitting people, but it is **hitting the poorest in Germany**. It is not hitting the richest, it is hitting the poorest. Those who are on social support they might be affected but it is not hitting the richest. So as I said initially there is an element of inequity in the Energiewende because rich homeowners can install solar panel and earn out of it whereas the people who are on rent and the poor people end up paying higher electricity prices.” (2.3c NGO)

5 LOCAL ENERGY POLICY



5.1 DEVELOPMENTS IN RUSSIA

Modernisation, continued use of nuclear power, expansion of renewables, greater energy efficiency

- According to the experts surveyed, the focus of Russian energy policy is undergoing a **gradual adjustment** rather than a complete overhaul. The importance of the raw materials sector, in particular **oil and gas extraction** for the energy industry and export markets, went essentially unquestioned, as did **nuclear power** and its continued use. They also pointed out that Russia has a great deal of catching up to do with regard to **energy efficiency**. What is more, prospects for the future in their view include mainly an expansion of domestic processing of raw materials (refineries, electricity production for export) rather than the export of energy sources themselves. Given the only marginal role played by alternative energies in the current energy mix, the fundamental **shift towards renewable energies** in the Russian energy sector was seen as a **desirable step for the future** by experts in all five groups.
- This fundamental interest in renewables is due first and foremost to **Russia's favourable geographical conditions and climate resources** (geothermal, PV, wind, hydro, tidal and wave power), which the experts surveyed unanimously described as largely untapped. However, another major argument for Russia to embrace renewables according to the experts was the global trend currently observed in all industrialised countries. In this setting, they saw the use of renewable energies as a **matter of prestige and evidence of Russia's modernity**. Here the experts emphasised the importance of not falling behind the Western industrialised countries in this global process. Lastly, they also mentioned the **long-term limits of domestic fossil fuel reserves**.

"Russia should develop renewable energy resources of our own, erect geothermal facilities along with the existing ones."

Administration representative, Russia

- However, the experts' assessment of the **pace of innovation** required for the expansion of renewables varied. Experts from public administration had a greater tendency to point to existing ordinances, such as the renewable energies ordinance of 2009, which aims to increase the share of renewable energies in the energy mix to 4.5 percent by 2020, or initiatives at regional and municipal level such as pilot and feasibility projects. These administrative experts also saw the issue of **energy efficiency** as playing an even greater role in medium-term energy policy. They particularly viewed cutbacks in domestic consumption in terms of external trade, namely as a way of saving fossil energy resources for the Russian export industry.

Modernisation and continued use of nuclear power

Expansion of renewables as a target

- "Russia **should develop renewable energy resources** of our own, erect geothermal facilities along with the existing ones." (3. 1)
- "Our country should **not be hung up about the traditional energy materials**, but plan usage of other resources: this could result in less expensive energy in this country." (3. 1)
- "I'm sure, **every nation should think of using renewable energy resources**. Russia is such a huge country, crossing several climate belts." (3. 1)



Business

- "I would say that this country would **better follow the path of Germany**, i. e. in the direction of the renewable energies, because **we have plenty of natural sources**, full-water rivers, for e. g. We have plenty of those in Siberia, the Far East, as well as, actually, in the central part of Russia." (3. 1)
- "I believe this country **should not stay behind these processes** despite the fact, that Russia is very rich in natural resources, i. e. oil and gas. We should consider what we emit into atmosphere, because the atmosphere is such a vessel which is not able endlessly to accept and accumulate what humanity is polluting into it. This is why we should not stay behind." (3. 1)
- "There are two aspects here. First, we should **make a model of Germany**. I mean we should take on the up-to-date innovational technologies, developments in terms of the renewable energy sources and introduce them in Russia at locations where relevant. The second strategy is **not to introduce these massively**. This could be implemented somewhere in the Far East region, Kamchatka. Instead we could use bio-thermal energy sources, i. e. the energy of biomass in the central Russia, in the Urals." (3. 1)



Parliament

- "In my opinion, the overriding goal of Russia's energy policy – is to reduce impact of the energy sector, and all related technologies, on the environment and drastically reduce the use of natural resources to meet the needs of society in energy." (3. 1)
- "It is **high time to think of our natural resources**. Stocks of oil, gas and coal are not limitless and they are getting exhausted, moreover I don't exclude they do faster than many expect it." (3. 1)



Administration

Greater energy efficiency



Business

- "I believe that Russia should make changes in the existing rules, regulations, norms, defining expenditure of fuel and energy in the direction of tightening the requirements for **energy efficiency, because our oil and gas reserves are not infinite.**" (3. 1)



Administration

- "... the inner **reduction of energy consumption is the main priority.** It should enable incrementing energy materials export to other countries." (3. 2c)
- "It's evident that the questions of **improving energy efficiency,** GDP energy intensity reduction are very topical for Russia. This is one of the issues our Ministry is addressing in its activity." (3. 3)



NGOs

- "We lose considerable amounts of energy materials, e.g. the associated gas, which is simply burnt and not used in any way when oil is produced. Perhaps this Russian government and state owned companies will give a careful thought to a more of quality usage of this and we will have good economy not only due to tariffs increase, but also due to some effect of energy-saving, economizing those associated upstream materials, which are not used today." (3. 1)
- "I think Russia should **properly and efficiently use energy available.** We still don't know how much energy we consume." (3. 3)

- Predominantly NGO experts, but also respondents from the other groups, criticised the pace and extent of the ongoing diversification process in favour of renewable energies. There were clear **doubts** in this regard that the central government in Moscow will provide the necessary **political support** and a serious commitment in terms of implementation. Aside from this lack of political will, other obstacles identified included **resistance from the oil and gas industry,** specifically the special treatment accorded to it by energy policy; the **cost disadvantage** of renewables in comparison to traditional fossil fuels; and a lack of urgency due to the country's extensive raw material reserves. Some experts also pointed to the issue of **dependency on expensive technology imports from the West.**

Criticism of the progress and pace of the expansion of renewables in Russia

- “We borrow great deal from Europe, but we still, I have to apologize for what I’m saying about this county, are a backward country.... We should look for alternative methods of getting electricity. Other countries have already started developing these methods.” (3. 1)
- “The government should make sure to support this energy sector development [renewable energy]. It will be impossible without the government’s support.” (3. 2c)



Business

- “We already have plans of introduction of the renewable energy resources. However the percentage of energy, generated from these sources is very small.” (3. 1)
- “We need a system of government support in terms of developing new technologies, equipment and facilities for the RES, scientific and technological basis.” (3. 2c)



Parliament

- “Renewable energetics enables generating cheap energy using local resources, and in this case all the opportunities need to be utilized. But every development of innovative technologies in Russia is actively torpedoed by lacking financing, corruption etc.” (3. 3)



Administration

- “In the area of energy policy, Russia should work in the direction of obtaining ecologically clean energy, but unfortunately too little efforts/funds are actually put in place for this cause now.” (3. 1)
- “Our organization and I personally welcome all the steps in this direction. It’s a pity Russia’s steps are very and very sporadic for this.” (3. 1)
- “The oil and fuel lobby in Russia is so much chocking any attempts to develop renewable resources, that... In this country they adopt regularly programs to support renewable energetics. However nothing is undertaken to fulfill these programs. Instead they are just talking.” (3. 2c)



NGOs

Continued use of nuclear power in the Russian energy mix



Science

- "I'm sure we have to develop, modify and improve renewable energy sources without however phasing out nuclear energy. We also need to participate in international projects on building thermonuclear power reactors, which seemingly could cardinaly resolve the energy issue." (3.1)
- "... In this connection, development of nuclear energetics is very relevant for Russia. Russia has achieved much in development of nuclear energy. It has great experience in terms of development, designing and technologies for the nuclear powered stations, as well as security system development for these plants." (3.1)



NGOs

- "We have a lot of opportunities, even for those very renewable energy sources: rivers, seas, fields, forests, opportunities for erection of mini-nuclear powered plants." (3.2c)

5.2 DEVELOPMENTS IN INDIA

Securing a broad energy mix that includes conventional and renewable energies

- Against a backdrop of rapidly growing energy needs, combined with the limited availability of raw materials in India, there was broad agreement among the experts surveyed that harnessing new energy sources is crucial to the country's energy policy. Consequently, most of the experts surveyed were of the view that India cannot afford to neglect certain sources of energy, and should resort to the **combined use of conventional and alternative energy sources** for the foreseeable future.
- Accordingly, both the **continued use of coal for electricity production** and the **use of nuclear** power were considered indispensable for India. Meanwhile, the expansion of renewable energies also played a central part in the experts' thoughts on India's energy mix. Here, as in Russia, the experts also pointed out that the country's geophysical potential for energy generation from renewable sources is far from being exhausted. Besides wind and PV energy, they viewed hydropower as an especially important renewable energy source for India. Particularly business experts believed that in addition to harnessing additional sources of energy, improving India's security of supply depends largely on **increased energy efficiency**.

"The difference that I will make and this is my personal opinion, India is going for renewables, but unlike Germany India has to make a strong pitch for nuclear."

Administration representative, Russia

Greater energy efficiency

- "I think **energy efficiency is something that should be pursued vigorously**. I think there are a lot of possibilities that are available in terms of increasing energy efficiency, reducing overall primary energy consumption in our country. There have been steps under the national mission on enhanced energy efficiency, but they have to be followed through." (3.1)
- "Well, **energy efficiency**, reduction in carbon emissions, **going for renewable energy**, **reducing** of building energy **consumptions** are very important – as important to Germany as important to India, because India is also facing the same problem of an increasing energy demand, reduction or depletion of resources." (3.1)



Business

Securing a broad energy mix that includes renewables, but also coal and nuclear power



Business

- “We have absolutely no kind of oil available in this country and we become highly vulnerable, more vulnerable than Germany in terms of balance of payments for the import of crude oil. So, the **requirement of energy becomes multifold** important in India, when we put the Indian situation, because we are in a growing phase and in the growing phase the energy requirements are going to be very huge. And depletion of resources is going to cause concern. And therefore, our **shifting to alternate energy sources is going to be important while we continue to be running on our coal** based energy systems. And therefore, one difference to Germany is that India **will pursue the nuclear option**, because we are not blessed with so much other energy resources ...” (3.1)



Parliament

- “India has huge power requirements and a huge deficiency of power. **India can't totally depend on renewable energy** – we need coal, also thermal power and hydro power and wind also ... It is a long way to go. The requirement is not only need more on urgent basis, so India needs to involve all the different types of energy. So we **need to have a mix of both renewable and non-renewable** sources as we have not yet completed achieved complete energy requirements which are required in India.” (3.1)



- “Well for the emergence of our country from a very high level of poverty and a low level of development to a higher level of poverty revelation and the economic development, I think the **conventional energy sources are going to continue to be very, very important** within next half century.” (3.1)

- “You know, India’s current energy imports are really having a very negative impact on Indian economy, oil imports are rising and now coal imports are also rising. It’s high time that India **should start thinking significantly about renewable energy.**” (3. 1)



Science

- “The difference that I will make and this is my personal opinion, India is going for renewables, but unlike Germany India has to make a **strong pitch for nuclear.**” (3. 1)
- “In terms of the dependency on coal, I think India is going to be much more dependent on coal compared to Germany and that I do not see changing at least in short term.” (3. 1)
- “India **should goal a lot more nuclear along with renewables** and should not become antinuclear which will lead to slowing growth in India because we need much more energy.” (3. 1)



Administration

- “We **require power from all sources** and we are also reaching the space where we are increasing the shipment on coal and fossil fuel and affecting our energy security. So I think we need to depend on renewable energy solutions. We have a huge potential for renewable energy solutions which is completely untapped.” (3. 2b)



NGOs

5.3 CONSEQUENCES OF GERMANY'S ENERGIEWENDE FOR RUSSIA

Negative effects: declining demand for Russian energy exports + loss of foreign exchange revenues

"There can be hardly benefits for Russia found here. I can repeat that this is a negative event for Russia, since Germany will give up the Russian gas and oil."

*Parliament representative,
India*

- Given the close ties between the energy sectors of Russia (as a supplier of raw materials) and Germany (as a purchaser of those raw materials), the German Energiewende – unlike in India, and also in contrast to Brazil, China and South Africa* – can be expected to have a direct impact on this relationship. Virtually all the experts surveyed expressed **concerns about economic disadvantages for Russia**. These disadvantages influenced the Russian experts' assessment all the more as, although they viewed **renewable energies** as fundamentally positive, they did not see an expansion following the German model as a **central priority for Russian energy policy**.
- All five groups mentioned **negative consequences for the extraction and export of domestic fossil fuels**. The experts expected the German Energiewende to lead to a fall in Germany's demand for Russian fuels, in particular natural gas. Given the importance of the energy sector in the overall context of Russia's economy and its crucial role as a source of foreign currency, they feared severe economic consequences as a result.
- Respondents from business, politics, public administration and science also believed the potential threat posed to Russia by Germany's Energiewende to be a serious one because they assumed that, if successful, it will have a Europe-wide spillover effect. According to these experts, a general trend towards renewable energies can already be observed in Western industrialised countries. In the event of other buyers of Russian energy exports moving closer to the current German model, they considered a **drop in demand** for Russian **raw materials on the Western European energy market** as a whole to be a possible outcome.

* See previous study.

Negative economic and budgetary effects

- “There will be just negative aftermath for Russia: this **country is one of the key suppliers for oil and gas** in the world market and if consumption of these products gets reduced even by such small country like Germany, this will strongly impact on Russia.” (3. 2b)
- “I would say we’re rather going to have greater number of disadvantages. Once again **we lose a purchaser for our gas**. I believe they will either give up our deliveries completely or partially. And so we will not be able to influence their international policies, their political decisions. They are going to be independent and this is an issue for Russia.” (3. 2b)



Business

- “There can be **hardly benefits for Russia** found here. I can repeat that this is a negative event for Russia, since Germany will give up the Russian gas and oil.” (3. 2a)
- “If Germany succeeds in this undertaking, then where shall we go with the gas and oil of ours, where oil and gas make up 60% of budget income? And if this happens promptly, we all in Russia are going to face an **insane budget deficiency**, which is even today insufficient.” (3. 2b)
- “At present the key negative aspect is that Germany is leaving from purchasing the hydrocarbon fuels. And since half of budget of Russia is based on fuel and energy resources being sold, the Russian government certainly will be compelled to think of how to compensate the **losses to the budget**, due to Germany’s leave as an oil and gas purchaser.” (3. 2b)



Parliament

- “EU Energy policies will depend on this undertaking success. If Germany succeeds, Russia can one day lose Europe, as a market for oil and gas supplies. And you know pretty well, that the **national budget is to great extent is formed through selling oil and gas** in Russia.” (3. 2b)
- “Russia is going to lose Germany as a market for it energy materials. The best part of the Russian budget is formed by revenues, received from selling oil and gas. I mean it’s already today when we should think of how we are going to compensate this **shortage in the Russian budget.**” (3. 2b)



Administration

- “To some extent these will be negative impact, because Germany won’t any more need energy resources, being imported from Russia. Accordingly economically this will **bring losses to Russia.**” (3. 2b)



Science

Loss of foreign policy influence

- A few experts emphasised that increased energy independence for Germany and Western Europe will have **negative effects on Russia's power to shape international policy** and could result in a loss of foreign policy influence. Accordingly, **power politics** were a recurrent theme in the impact assessments of the Russian experts surveyed.



Business

- "I would say we're rather going to have greater number of disadvantages. Once again we lose a purchaser for our gas. I believe they will either give up our deliveries completely or partially. And so **we will not be able to influence their international policies, their political decisions. They are going to be independent and this is an issue for Russia.**" (3.2b)



Parliament

- "If Germans get stronger due to this energy transition, get more prosperous, we are then going to look pygmy if set against them. **Their strengthening will result in our getting weaker.** Politically this is dangerous." (2.2)



Administration

- "In case of success, **Germany will be stronger and more independent,** both politically and economically" (2.2)

Positive effects: help with the modernisation of the Russian energy sector will result in learning effect + technology transfer

- For all five groups of experts, the positive aspects of Germany's Energiewende involved first and foremost the **development of the Russian energy sector**, i.e. harnessing the so far barely exploited potential for **alternative sources of energy** and increasing **energy efficiency** in the country.
- The Russian experts expressed high hopes that Russia will benefit from the **assimilation of administrative experience** from the planning and implementation of Germany's Energiewende. They identified the use of mature **technologies and innovations** to exploit renewable energy sources and introduce energy efficiency measures in Russia as a key benefit of Germany's Energiewende. They also saw this as an opportunity for closer economic cooperation between the two countries, pointing to Russia's technological expertise and scientific research capabilities.

- “We could do in the area of scientific research and training specialists on energy system modernization and economy development based on hydrocarbon free energy.” (3.3)



Business

- “We should **import the skill of saving** into Russia above all, because we are too wasteful in terms of energy materials use. Even in terms of heating our houses.” (3.3)
- “If some **cutting-edge technologies** are developed, where some small wind mill for e.g. is capable of generating say one, two or even three megawatts, i.e. technical innovations, then of course such an experience **could be transferred to Russia**. I.e. technology transfer, the way it’s happening now, e.g. Siemens is providing now Rushydro Company with turbine equipment, i.e. ready-made, the latest technology with very high efficiency factor. I.e. borrowing technologies and interpolation them to the Russian territories.” (3.2c)



Parliament

- “Accordingly **experience** of the developed countries, particularly Germany in terms of regulatory and legal framework and state regulation **could be useful to Russia for increasing its energy efficiency** level.” (3.3)



Administration

- “To my mind, should we think of Russia, we need to have only one goal above all, and this **goal is the modernization of the whole system**, I mean energy system. It’s because currently everything is operating in this country the way, let’s put it this way, it did decades ago. Even small modernization, without energy transition, but simply adoption of up-to-date technologies – will result in a huge economical effect to this country. ... But I think, our task is exactly to modernize our production and sell not the raw mat, but energy, made product, quality energy.” (3.1)



Science

Pressure for diversification of the Russian economy

"It's time to think what will be left for our descendants."

Administration representative, India

- While the respondents unanimously expected the Energiewende to have negative economic consequences for Russia, they believed that the severity of these consequences depends in part on the time frame in which the fall in demand will occur and on the pressure that the Russian economy will be under to adjust and react to these changes. The experts also identified the extent to which structural changes in the Russian economy are regarded as unavoidable or even desirable as another important factor in assessing the economic impact of Germany's energy policy overhaul.
- Particularly representatives of environmental organisations and NGOs **expected no abrupt drop in demand** as a result of Germany's Energiewende, but rather gradual changes to which the Russian economy will be able to adjust and react over time. What is more, they believed that a potential decline in the importance of Russian gas to Germany or even Western Europe as a whole could provide a **desirable external impetus for modernisation and diversification of the Russian economy and Russian exports**, leading to a departure from the dominance of the raw materials and energy sector.



Parliament

- "... We should not just be dependent on whether they would purchase from us and thus make us well off, but they should be dependent on whether we buy something from them. We should produce as many as possible quality products and stop depending on anyone." (3.2a)
- "Our party is the entire time saying we **should turn to the real economy sector and not just be selling raw materials.**" (3.2b)



Administration

- "Although some are saying even if Germany is proceeding ahead of the transition schedule, it anyway is still going to be compelled to purchase hydrocarbons during next decade." (3.2b)



NGOs

- "I **don't believe there are going to be big global changes in next 10, 20, 30 years.** And Russia will anyway remain the key energy materials supplier to Europe in the same way it used to be." (2.2)
- "I **can't see any negative consequences** related. Theoretically, gas consumption is not going to reduce because of this [German energy transition]." (3.2b)
- "The negative impact of this transition is that Gazprom boys are going to earn less money, which will indirectly affect the federal budget and make them take steps on searching for new markets, i.e. they will finally come to have to work, which is also too bad thing for them. It's because it's much better when I'm sitting idle and the money is dropping into my purse effortless." (3.2b)

- “If Russia continues to remain a raw material producing country, the transition of Germany will impact strongly negatively on this country’s economy, as the consumption volume for the energy materials will be decreasing, and accordingly revenues will go down in terms of the Russian budget replenishment. Today it gives 50%. **And we’ll have to think of something.**” (3.2b)

Creation of long-term fossil fuel reserves for the local energy supply

- In view of the long-term limits of Russia’s own fossil fuel reserves, some experts saw a reduction in Russian energy exports caused by the Energie-wende in Germany and Europe in a positive light, i. e. as an opportunity to **preserve traditional domestic resources**. The proponents of this view argued for the **conservation of raw material reserves for local use** and the **creation of reserves for future generations**. However, the stance that declining exports of non-renewable energy sources **will contribute to Russia’s long-term energy independence** was limited to a few experts from politics and public administration.

- “If some energy material consumer is gone, it means we save some of our natural resources, because as I said, these are not endless. These are going to exhaust in the next 100 years. ... That’s why **we should spare our hydrocarbons for ourselves**. So the less number of buyers for hydrocarbon fuels we have, the better.” (3.2a)



Parliament

- “Now it’s time to come to think whether we should stop squander carelessly our energy reserves. It’s time to think **what will be left for our descendants.**” (3.2a)



Administration

5.4 CONSEQUENCES OF GERMANY'S ENERGIEWENDE FOR INDIA

Minimal negative impact: "Why should I think of negative effects?"

"Negative impacts will be in terms of money only. In terms of money, when Germany will achieve their target, there will be pressure on the developing countries to achieve their minimum target."

*Science representative,
India*

- Due in no small part to the absence of trading ties between the energy sectors of India and Germany, the majority of Indian experts – unlike in Russia (and similarly to Brazil, China and South Africa) – associated **very few negative consequences** with the German Energiewende. On the contrary: they cited the country's own dependence on raw material and energy imports, its huge energy needs and the resulting pressure to harness new sources of energy as reasons for the German Energiewende to be seen as a **fundamentally advantageous process for Indian energy policy**.
- One expert nonetheless feared that in the event of a successful energy policy overhaul on the part of Germany and other Western industrialised countries, **increasing international pressure** will be applied to countries such as India to review their environmental and climate policy aspirations, and potentially to commit to more ambitious climate and emissions targets. This expert saw a danger that an externally imposed, accelerated and wide-ranging overhaul of India's energy supply could overwhelm the country, since its level of development, available resources and starting conditions would not be taken into account – a concern similarly voiced in Brazil, China and South Africa.
- Experts here also pointed out that a stronger integration of renewables into India's energy mix according to the German model could give rise to difficulties that might affect the country's own agenda. They viewed an accelerated transition of this kind as being fraught with potential problems such as the resulting **investment costs**, the **affordability of electricity** for wider sections of the population – particularly the poorer sections – and, in isolated cases, **negative environmental side effects**.

No negative effects expected

- “I **don’t see any negative impact**. I see all positive impacts that particular transition would do ...” (3.2b)



Business

- “I **don't see why this could have any negative impact**. Let them make the transition and if they actually succeed in making the transition that will be all to the good and will perhaps throw up technologies as well as economic opportunities which **we in India can profit from.**” (3.2b)



Parliament

- “So generally I see that **most of the outcomes will be positive** that if there are technologies advancements or some successful deployment strategies which get use in Germany than **India could adopt it.**” (3.2b)



Administration

- “No I do not see any negative impact. Energiewende is going to be **beneficial to everyone**. I do not see any reason why it should have any negative effect.” (3.2b)



NGOs

Negative effects anticipated if the adaptation pressure becomes too strong

- “See the negative impact is that as I mentioned all these transitions lead to higher tariffs at least. And **higher tariffs** affect the poor and the fixed income groups more than those people who can pass it on. ... So the **equity issues are much more important in India because of the levels of poverty.**” (3.2b)



Administration

- “I mean the negative impact is that if one is extremely short sighted and says that we can do the same things that, so you know blindly following the same goals could be negative impact, but that is all theoretical.” (3.2b)

- “Negative impacts will be **in terms of money** only. In terms of money, when Germany will achieve their target, there will be **pressure on the developing countries to achieve their minimum target.**” (3.2b)



Science

Positive effects: learning effect + access to mature technological solutions

"I don't think of any negative effect, because what I want to say, if there is a lot of things like solar, it will be an employment generation in the industry."

*Business representative,
India*

- The experts saw the positive consequences of the German Energiewende on India as lying in learning effects that could provide impulses and inspiration for the development of the country's own energy system. The main focus of interest in India was on **technological aspects** – as was also the case in Russia, Brazil, China and South Africa. However, aside from technology transfer, some of the experts also hoped that India would benefit from Germany's **administrative expertise**, particularly in the areas of **planning and implementation**.
- Experts cited the **transfer of mature new technologies** related to renewable energy sources, energy efficiency and grid configuration as India's main benefits from the German Energiewende. In this regard, they highlighted in particular the **cost advantages** arising from **technology mass-produced for export to the Indian market**. At the same time, some experts had clear expectations of **economic benefits** for India's own industry, hoping for the involvement of domestic companies in the manufacturing process, with attendant local employment effects.

Learning effect



Business

- "The benefit would obviously be in terms of an **available benchmark**, a global benchmark available in terms of a developed nation pursuing an agenda so rigorously. That is one in terms of a role model." (3. 2a)
- "I think there is **a lot of learning that can be achieved**. But, from a country perspective, I think, it would be very important to associate with this a kind of activity which is already taking place at a government to government level and keep on learning from the initial days itself, rather than waiting for it to be implemented completely and then say, 'come on, now we should go and learn from them', that should not happen. We should start talking to them today and learn from them today." (3. 2a)



Parliament

- "I think one way is to have **a technology transfer** which is more important and second is to learn from their experience in how many phases they have implemented this." (3. 2a)

- “Maybe India is waiting and observing Germany to go ahead and see where they will be successful and then start implementing in India, that will be a strategically point which India is right now instead of going ahead and facing problems may be India is strategically waiting for **Germany to succeed first or face the problems and solve them first**, then observe them, their success, and then start implementing it in India.” (3.1)
- “We are learning from Germany about re-corridor and sustainable development and how this transformation of energy from one state to **another state can take place without any loss**. So, these are some of the things we can learn from German.” (3.2a)



Science

- “When we look at the situation in India, exact transfer of the mechanism of feed-in-tariff seems difficult. We have to adopt. This mechanism is not feasible for India, are there alternative mechanisms. But this process of thinking, this thought process would not have started, perhaps, if the example of Germany was not there. So, it does **trigger the thinking process** and it prompts Indian experts, and the departments and Ministries to think for alternatives. But the lesson is there. So, the objective would be to reach similar successes, but then we have to devise our own mechanism.” (3.3)
- “I don’t think that there is anything in terms of policy that we really need to learn, policy framework that we need to learn from Germany. I think it is more **in terms of policy implementation that we need to learn from Germany**.” (3.1)



NGOs

Technology transfer

- “Well I mean, it [technological transfer] could be in a conventional way, a technology licensing route. That could be one route. [...] And there are of course, other ways in terms of intellectual property transfer or joint ventures or acquisitions or mergers.” (3.2c)
- “First thing I see a technological issue in terms of generation, a more efficient generation. Two the grids are not really perhaps structured to, they don’t have capability to absorb beyond certain levels of renewable. That again is technological problem and I mean from direction point of view, from issues point of view they are similar but in think technological capabilities there is lot of difference.” (3.2a)
- “Whatever technological developments they will be doing in terms of making their energy transition completely credible from fossil to renewable, I think **India will be able to learn a lot from**, India will be able to adopt a lot of things and ongoing collaboration, as I mentioned.” (3.2a)



Business

- “I don’t think of any negative effect, because what I want to say, if there is a lot of things like solar, it will be an employment generation in the industry.” (3. 2b)



Parliament

- “If we can learn from the model developed by Germans, if we can apply that to India and **overcome the energy deficiency** we and German companies have huge opportunities to invest in India. German technology can not only transform, transit into India but also these companies also can do benefits by doing business together.” (3. 2a)



Administration

- “Certainly, any technological development because regarding our entire wind power sector we are relying on German or Danish technology, the European technology. India is the number 2 largest manufacturing base in the world for wind turbine, most of the manufacturers have a lot of key components, and technology from Germany, so **any development there will definitely influence India.**” (3. 2a)
- “So again we expect that if Germany moves ahead with all these technologies and achieve some truly transformation technologies, then in the coming decade **those technologies will also get sort of apply to India** to various technology partnerships or manufacturing partnerships.” (3. 2a)



Science

- “[India could benefit from energy transition in Germany] in the sense that if Germany invests in R & D to reducing the cost of energy produced by the renewable sources, I mean those **technologies can be made available to Indian companies** and Indian companies could buy those technologies and benefit from them. Germany has always been a technology leader in many areas.” (3. 2a)



NGOs

- “Germany is doing it first. It has first movers’ advantages. It will develop a new technology for grid and grid management. It will develop technologies how electricity will be managed from smart grids for electricity efficiency in buildings. So I think the advantage for us will be in technology issues and management issues. So we will **benefit by a closer partnership with Germany** on technology issues.” (3. 2a)

5.5 TRANSFERABILITY OF GERMANY'S ENERGIEWENDE

A general guideline rather than an imported policy

- As far as the transfer of Germany's Energiewende is concerned, experts in both Russia and India (as previously in Brazil, China and South Africa) pointed out that different national circumstances stand in the way of a **straightforward adoption of the German model** as a complete package (targets, scope, time line) in one fell swoop.
- Experts in **Russia** mainly emphasised that the country's abundance of raw materials and energy resources necessarily implies different energy policy issues and challenges to those in Germany. Whereas in Russia there is less immediate motivation to change the domestic energy mix owing to the lack of an urgent need to take action, experts in **India** did indeed see similarities to Germany's initial conditions, pointing to the country's shortage of raw materials and dependence on imports. However, Indian experts also emphasised the country's particular features. Among these was the dynamic rate of growth forecast for domestic energy demand, which rules out forgoing certain sources of energy such as nuclear power or other non-renewable energy sources. Additional factors mentioned were India's significantly lower level of development and its insufficient resources (capital and know-how) for an Energiewende on the scale being implemented in Germany.
- Aside from the issue of adaptability of the German model or its appropriateness to the Russian or Indian energy context or the respective local circumstances, Germany's Energiewende was acknowledged as a **source of practical experience that can be exploited for the further development and modernisation of both countries' energy systems**. This included the transfer and exchange of technology, and learning from Germany's experience in administrative matters concerning the implementation and management of the Energiewende.

"It should not be called as transferring to India. We need to have our own policy based on our social and economic and governance structure."

*NGO representative,
India*

No carbon copy, but...



Russia

- “In the given case **it’s not very much correct comparing Russia and Germany**, because Russia is according to many criteria, is the largest supplier in the world. That’s why it would be strange if we were giving up the traditional fuel type in our own market.” (3.2c Administration)
- “Look, the **both systems are too different**, historically our states are different, besides, we are strongly different mentally. For this reason, should we transfer something from outside, let this be **knowledge and know-how.**” (3.3 NGO)



India

- “No, I **don’t think it can be directly transferred** to India because India has altogether a different kind of setup. A direct transfer of the energy transition I don’t think that is possible. But again I am saying that there can be learning from there or there can be an expert of that whoever has implemented that or they can be part of some expert committees and those kind of things, they can be having a kind of advisory or guidance source, not as a direct transfer of the energy transition.” (3.2c Business)
- “There are differences obviously. I mean, you **can’t just copy-paste** an idea or implementation from there and try to put that over here. It just doesn’t work that way. We have different levels of learning, we have different economics completely. Having said that, of course, but there are lot of things to be learned and probably transplanted in our environment in a different way in each of these categories.” (3.2c Business)
- “I think you need to **‘Indianize’ many of the things** because in many areas in India you may have a better sunlight for solar energy, you may have better bio-resource, so bio-mass available.... So we would need to mold the policies suiting Indian conditions and take all positive aspects while implementing that we can succeed.” (3.2c Parliament)
- “I think in terms of **encouragement, in terms of trends and in terms of technology, it can be transferred.** It is available in Germany and required in India. But transferring something, I have my concerns when you use the word transfer. I would say the trends are encouraging, the lessons can be applied and whatever advancements have happened in Germany could be adopted internalized into India’s energy policies.” (3.2c NGO)
- “How they are working on energy efficiency and renewable energy we can learn from them but **in the end of the day it has to be a model which would be suitable for India.** There is nothing called transferring, I do not believe in that term transfer.” (3.3 NGO)
- “It should **not be called as transferring to India.** We need to have our own policy based on our social and economic and governance structure.” (3.3 NGO)

- The fundamental receptiveness to elements of Germany’s Energiewende in both Russia and India was ultimately manifested in the fact that experts in both countries accepted, essentially without question, the integration of individual instruments into their respective national energy policies. In both countries, this applied equally to investment in renewable energies and improvements to energy efficiency.
- Ensuring public participation and transparency in energy matters was considered important in both countries. A top-down perspective dominated the Russian and Indian experts’ approach to the issue. The main point they raised was the need to inform the population about new forms of energy and more economical ways to use energy, thereby increasing knowledge and raising awareness in order to obtain a wider societal acceptance of changes in national energy policies.

Integration of all three instruments

- “I think **any of these could be transferred to Russia.**” (3.3 Business)
- “Everything you have listed is **well applicable to Russia**, because Russia is not some Martian piece of territory. We all live on the same planet and therefore everything which is applicable for Germany will appear fully acceptable and good for Russia.” (3.3 Parliament)
- “Russia **needs everything of the listed:** the transparency and increase in share increasing energy production from renewable energy sources, as well as citizens’ participation etc.” (3.3 Parliament)
- “Should Russia make a decision on such a transition, **all the listed could be transferred effectively to Russia.**” (3.3 Administration)
- “All **these measures will be logical for Russia** when Russia becomes a little bit better off, and when we don’t need any more to spare funds, when Russia comes to allow luxury, i.e. take more care about environment.” (4.4 Science)
- “Everything seemingly could be discussed.” (3.3 NGO)



Russia

- “All **three are required in India** in my opinion.” (3.3 Business)
- “We need transparency, we need efficiency, and we need civic acceptance. It is not one option or another. It cannot go away with other. It’s not that you can leave one or choose one. All needs to go together.” (3.3 Parliament)
- “All three measures are equivocal. I think one has to **follow a policy of all three measures.**” (3.3 Administration)



India

Focus on expansion of renewables



Russia

- “Despite the fact that Russia is better than any other country provided with energy materials of its own, development of the renewable energy will be a highly important drift for our future energetics.” (3.3 Business)
- “Of course **increasing the share of energy production** from renewable energy sources! ... Why should we burn oil, gas, coal – i. e. which is not renewable – when we have enough water resources able to replace these energy sources, oil, gas, and leave these to next generations.” (3.3 Parliament)
- “I would rather advocate for increasing **energy production from renewable energy sources**. For e. g. we have a huge potential of biomass in this country, i. e. the agricultural production, forestry, food industry wastes, as well as those of urban disposal works.” (3.3 Administration)
- “First of all, it’s **increasing energy production from renewable energy sources** – this would be relevant. I mean we should increase the percentage of them.” (3.3 Science)



India

- “Yeah, so **increasing energy production** in India is probably more important than in Germany because in India there are a lot of places without power and we have a load shedding and all these things. So increasing energy production has to be a very great priority and then the **renewable is one of the things which India can probably benefit more** than Germany because the solar radiation is actually more than in Germany, way it makes a lot of sense.” (3.3 Business)
- “We have blessed with plenty of sun and we have a huge coast line for offshore wind. So it goes without saying that **such things have to be encouraged purely because we have the resource.**” (3.3 Business)
- “Renewable – yes we can increase. We will not be able to go to renewables to 60 percent of the share as in the Energiewende. But yes it is a good goal, the **goal of increasing renewables in the energy mix.**” (3.3 Administration)
- “With respect to renewable energy sources, technologies are known that is already happening in the world. Now wind was the first to come up, solar is now coming up very well in more recent times. States like Gujrat and Rajasthan and surprisingly Ladak for example in Jammu and Kashmir has very high solar intensities.” (3.3 Administration)
- “We have an advantage on heat and also on wind and especially solar. Solar panels can be installed everywhere, every home, commercial buildings and everywhere, but since they are expensive nobody wants to go for it. Initially the government can give some subsidies to all these people which equal the retail cost supplied by electricity board. More and more people start implementing this, then the cost of setting of units also comes down.” (3.3 Parliament)

Focus on investment in energy efficiency

- “Definitely **improving energy efficiency**. It’s because we spend on production at average twice or thrice more energy resources per unit, than Germany and other developed countries.” (3.3 Science)
- “**Improving energy efficiency** – Certainly! Unfortunately the existing power supply system, centralized heating system causes crazy losses, i.e. just crazy, which cannot even imagined and accepted in many countries’ economies, ...” (3.3 Parliament)
- “We should **import the skill of saving into Russia above all**, because we are too wasteful in terms of energy materials use.” (3.3 Parliament)
- “My immediate association is the **increasing of energy efficiency**. Energy costs make up a component of any self-cost of any commodity, therefore increase in energy efficiency will result in improvement of different economy parameters. So I would point to increasing energy efficiency first of all.” (3.3 Science)
- “**Improving energy efficiency** – this could be to full extent imported from Germany. As far as I know, energy-efficiency of the Russian production is one of the smallest amongst developed countries. So the energy-efficiency needs to be incremented.” (3.3 Science)



Russia

- “For example efficiency improvement that is basically a technology up-grade. So people **should take a lead from Germany** and try to put some technology up-grade plan onto a government level and then that can be transferred to the private sector.” (3.3 Business)
- “And **energy efficiency has to be encouraged** because our lifestyles we should not completely copy the energy hogging lifestyles of the west, but we should also consume energy in a more efficient manner. We should reinvent the wheel, we should learn from the past mistakes of Europe.” (3.3 Business)
- “Another thing is as I told that by **implementing these energy efficiency measures**. We can reduce our demands ...” (3.3 Administration)



India

Focus on transparency

- “And the first thing we should undertake is to **educate our people**, why we need this, because if any step of the government does not meet people’s approval, their efficiency get reduced many-fold. ... And if our people are told this, explained and shown, they gradually will get used to the thought they should transit to such energy sources, begin using them, to see how they work.” (3.3 Business)



Russia



India

- “We should specifically **focus on transparency** of relevant measures, as you have correctly put it. We talk a lot about transparency, but we do little in this relation.” (3.3 Business)
- “What **transparency** do we have? Very poor transparency! This would be a **very useful acquisition.**” (3.3 Science)
- “I think **all of them must be transferred to this county**, however transparency – immediately! I believe that all the documentation on tariffs and pricing in power supply sector should be open to public, at least online.” (3.3 NGO)
- “**Environmental education**, enlightenment will make a good basis for any progress. Just based on this, the population can be encouraged to come to use renewable energy sources.” (3.3 NGO)

- “The third measure [transparency] is the **most important** one because without that the other two will not have a push. For example we have the RPO mechanism, renewable purchase obligation mechanism in India, but there has been push from the government sector to push all agencies, utilities to take seriously renewable.” (3.3 Business)
- “What I feel is the third one where transparency and civic participation is there that will help because we are predominantly a democracy. A participative kind of this thing will go a long way in helping the transition because in India some of the PPP modules, the public private partnership module, those have been quite successful. So what I personally feel is that the third one would be really helpful because in India we would like to participate and try to know what is happening and things like that. If there is increased transparency, I mean as citizens we will know what the leaders are up to, they cannot just take us for a ride, so that way there will be more, it will be better.” (3.3 Business)
- “I think energy efficiency that has to go in the end. We have to **create more awareness**, that is increasing transparency and civil participation, societal bill has to be generated and then energy production definitely from renewable sources with technology transfer should happen in India.” (3.3 Administration)
- “I think the **transparency and involvement of civil society** in some of decision is going to be very important. And particularly in the Indian context I think that has already been a big issue where some of the large projects which have been announced by government have not been able to be implemented because again we are ultimately a democracy and finally the people support has to be there for such large initiatives.” (3.3 Administration)
- “I feel the last one you said, getting the population to have **higher acceptance**. That should become priority in India.” (3.3 NGO)

6 THE OUTLOOK FOR GERMANY



6.1 COMPETITIVENESS

Energiewende seen as giving Germany a long-term locational advantage, despite the short-term risks

- In the long term, both the Russian and the Indian experts predicted two kinds of positive outcomes of the Energiewende for German competitiveness. On the one hand, the majority of the experts were convinced that the Energiewende will stimulate the development and production of new technologies related to energy generation, electricity grids and improved energy efficiency. They also expected Germany – given its role as a technological pioneer – to experience **competitive advantages in this global growth market**.
- Both the Russian and Indian experts foresaw a second positive effect for Germany as a business location in the **long-term cost benefits of gradually reduced prices for electricity generation from renewable resources** in Germany and of the country's **decoupling from the international raw material markets** and their price fluctuations. They expected Germany to experience much more positive cost developments than economies that are more dependent on such raw materials, especially as fossil fuels get more and more expensive as they become rarer and more difficult to extract.
- **Risks for Germany's competitiveness and attractiveness as a business location** were identified in the area of **technological security of supply**. The experts pointed out the difficulties of ensuring an interrupted supply of energy for Germany's industry in a system that is dependent on unreliable sources like the wind and the sun and thus subject to fluctuations caused by the weather, season and time of day.

"The risk I think so far is high cost and how to manage it. And what is more technical in nature, how to manage the grid."

*Science representative,
India*

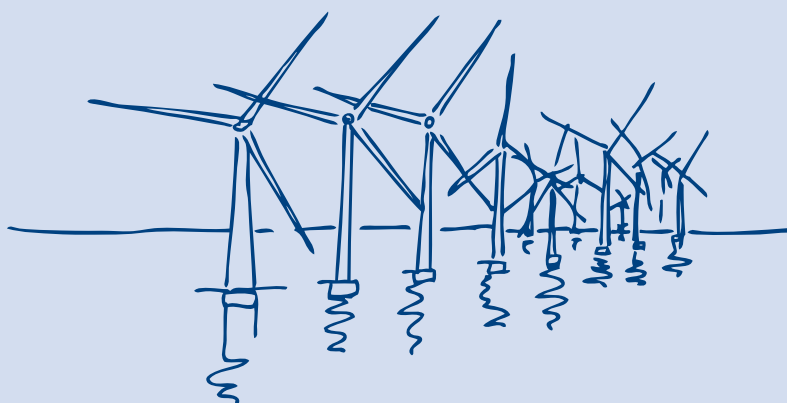
The experts believed that novel solutions for grid management and electricity storage are prerequisites for a reliable supply and thus for smooth production processes in German industry. They also mentioned the **negative cost effects** of the Energiewende for German business that could arise from the comparatively high costs of generating electricity from renewable sources. However, the experts thought that these types of risks are only of any real significance early on in the process of restructuring the German energy system.

Positive long-term economic effects



Russia

- "As a prospect, I believe Germany will get considerable saving, as they will not have to purchase gas, fuel, as well as to service and maintain these expensive electric power stations. They will arrange for production and distribution of these solar batteries. And should they be the first to do it, they will have very paying opportunities of making good profit through selling these energy sources to all its neighbors." (4.1 Business)
- "And yet I can definitely point to one benefit, and namely that **Germany is going to make a leader** in terms of the new energy technologies." (4.1 Parliament)
- "When the entire world finally switches to the renewable energy resources, **Germany will appear the largest supplier** for the relevant technologies, developments and specialists in this industry." (4.1 Administration)
- "Thinking of long run prospects, the very positive aspect is that Germany will still have great percentage of energy, generated using renewable energy sources. Even if they have to resume using nuclear power plants for whatever reason and recover purchasing gas, they are still going to enjoy a secured share of their own energy. This is a very positive aspect. Positively of course. It will upgrade it." (4.1 Science)



- “In the long run prospect when prices go down and this will cause economy boost, cheaper energy, since many European countries outsource their manufactures to abroad, e.g. China, India to reduce labor costs and impact on environment, when Germany switches to the clean energy sources, this will enable resuming production in its own territories, which result in production of less expensive European commodities.” (4.1 NGO)

- “You are becoming a **global leader in terms of that technology** and going and implementing it somewhere else, your credibility is that much more.” (4.1 Business)
- “... The other associated benefit is to their industry because they are the leader and if their industry is producing good products, better efficient products, so it means they can sell it to other countries and it means **they are benefited in the process through commerce.**” (4.1 Administration)
- “**Competitiveness will come after certain period when the industry will get benefit** from renewable energy and their carbon footprint will be less. They will be the leading unit in the world to protect the trans boundary tax and all, they can negotiate in the world to get some additional benefit due to reducing their energy footprint or you can say carbon footprint.” (4.1 Science)
- “It is a great objective. And one of the issues is reducing the cost of energy inputs. If they reduce the cost of energy, the products become cheaper, ignoring the marginal inflation that may take place from year to year. Otherwise, their cost should be coming down, and they could also become more efficient.” (4.1 NGO)



India

Negative economic effects



Russia

- "There's only one kind of risk I can see. There's the risk, that at some moment Germany will require huge amount of energy for something, huge amount of energy at once, and these solar batteries will fail to provide this energy amount, i.e. these depend on the sun and the wind. There should be some source to provide this huge amount of energy at a time. I believe the risk can be minimized, should some kind of energy storage facilities constructed in advance."
(4.1 Business)
- "I **don't think this will affect Germany competitiveness** in any [positive] way for that simple reason that electricity is going to be very expensive for any type of power-consuming production. That's why the manufactures will be moving to states with less expensive energy, labor force." (4.1 Administration)



India

- "In the short term it is **already having a negative impact on their competitiveness**. As I said earlier, German companies, BASF for example when they expand capacity instead of doing it in looks big half in Germany, they are doing it in US. So that is here and now the impact!" (4.1 Administration)
- "The **only risk for them is cost competitiveness**. If they are not competitive with others, their industry would not get the orders and that is the only risk. Otherwise there is no risk." (4.1 Administration)
- "The risk I think so far is **high cost and how to manage it**. And what is more technical in nature, how to manage the grid."
(4.1 Science)
- "The greatest pitfall, the ambitious program of closing down all nuclear plants by 2022, if it happens, what are the other sources of energy that are in the pipeline to account for this loss of power towards the nuclear plants. How are they going to manage that? Because it is not a small component! There could be problems in implementation."
(4.1 NGO)

Little doubt that long-term energy policy planning makes sense

- Germany's long-term energy policy planning within the framework of its Energiewende was met with a **largely positive response** by the Russian and Indian experts. From a practical perspective, this period of time was regarded as appropriate, as it takes time to develop the required technologies and sensible energy policy planning has to be conceived for the long term, especially given the life cycles of power plants.
- On top of that, the experts generally praised the German government's long-term energy-policy plans as very **forward-looking** as they address global environmental issues and drive technological progress. Many experts in both countries believed that the Energiewende will have a **positive effect on Germany's economic and commercial position**, and that it will set a **global example** for other countries to follow and benefit from. One Russian member of parliament even suggested that Germany could reach its goals within 25 years.
- In both countries there were isolated critical voices that **doubted the certainty of such long-term planning or even whether the German plans are realistic**. These critics said that Germany needs to be particularly cautious in terms of how it deals with **rising energy costs** for consumers and businesses. One expert expressed the belief that Germany will lose its attractiveness as an industrial location for at least a short period of time. Several experts believed that German industry needs to **move away from traditional sectors** such as steel and embrace more modern industrial sectors. Two of the Indian experts were in any case certain that Germany will not achieve the goals of the Energiewende through its industrial dominance unless it revises its goals. Russian scientists in particular believed that it is wrong to focus on renewable energy sources alone; they thought it is necessary to continue to use nuclear power or to resort to fossil fuels.

"On the other hand, I like this idea that a government thinks of future of its nation."

Administration representative, Russia

Positive response: Germany is looking to the future – economically, environmentally and technologically

- "40 years seems too long, but in reality, the years fly swiftly and technologies are developing fast, and the natural resources are not endless. If we don't start the changes today, we can get late tomorrow. I wish this country started the same kind of energy transition as soon as possible. Resolving the tasks, Germany currently is looking at, **will make it a leader in the European economy.**" (4.2 Business)
- "All the energy transition relevant programs are long prospect ones anyway. Respectively Germany is doing a totally right thing, having planned the energy transition for such a long period." (4.2 Business)



Russia

- "It's of course is very positive that Germany does this long term planning, and does not live for the moment. This is another evidence of that **Germany is looking into the future, thinking of what it leaves to future generations.**" (4.2 Administration)
- "On the other hand, I like this idea that a government thinks of future of its nation." (4.2 Administration)
- "This is very good that they are looking 40 years ahead in their future and we should be very grateful to Germany for this. It's taking steps in the area, and it's to **some extent working for the others' sake – working out new technologies which will be finally of benefit to all the nations.** Germans will have to pay somewhat greater price for this, but Germany will manage that and they will be able to sell these technologies and solutions to others in the future. And Germany will surely have a better return on what they are spending now." (4.2 Science)
- "Perhaps we should mention here, that it's all about the German government's political will above all, which orients (mobilizes) its scientific and technological potential, its people to the energy transition implementation. There can be even times, when Germany will experience some deficiencies on energy resources, should it give up the currently traditional energies. And still the **German Government's political will deserves respect and approval.**" (4.2 Science)
- "This approach, i.e. planning not for 2 or 3 years ahead, but longer run, is most appropriate. **A good leader, politician will have the clear vision** of a prospect if he or she forecasts the situation for next 10 years." (4.2 NGO)



India

- "I think I really admire because of the fact that unless you think this kind of a long term on energy, knowing very well that we are going to get into a big problem as the fossil energy resources are going to dwindle and the climate changing issue is going to get magnified and if we are going to be building an alternate energy resources and technology and generating systems and you start thinking right now, I would consider that **Germany will become a leading nation because of this particular transition** decision that they have taken right now. And, I am sure that lot of countries in the globe will follow this suit." (4.2. Business)

- “Naturally, see, all these developed nations should have a long term policy irrespective of the costing because they won't enjoy the fruits of developed if they had not been able to pollute without any standard, without checks and norms. Now, **they have more responsibility and they should pose for the social cause itself.** That way every developed nation should think like Germany. So the longer they think more advantage they would have and being one of the developed nations this would definitely lead to a positive impact on their country.” (4.2 Politics)
- “All energy policy must be based on a long term vision with you know paying intermediate short term stages as well.” (4.2 Politics)
- “It is definitely a foresight full thinking because long-term policies are a must for generation to sustain their life and I think Germany as a leader in Europe I think it is a good thing to go ahead.” (4.2 Administration)
- “Yes, we talk about industrial revolution and the present energy transition, this is a major change, or I should say, this is another revolution in energy which is going to take place in Germany or in the whole world, or perhaps in India.” (4.2 Science)
- “I mean, this essential to secure the future that you are transiting now and as somebody said, best **time to plant the tree is 20 years back and the next best time is now** [...]” (4.1 Business)

Doubts about long-term planning

- “I think the period until 2050 is rather long, so they'd better **split it into several middle-term plans** perhaps. Besides it's hard to predict pricing conditions globally for oil or gas in overall.” (4.2 Politics)
- “I have some **doubts regarding how realistic the relevant plans of Germany are,** but on the other hand the German government is not likely to get involved in any stillborn project. They are likely to have calculated everything carefully.” (4.2 Politics)
- “Meanwhile it's **not easy to evaluate** future prospects of long-term projects like this, since we don't know so far for definite, what the output for this energy transition of Germany will be.” (4.2 Administration)
- “Generally I'm not a supporter of long-term prospects. How can I take a long shot for several decades ahead, when we have **no idea what expects us tomorrow.**” (4.2 Administration)



Russia



India

■ “Today their renewable energy sector makes up about 3–5%. I think they will manage bringing this share up to 10% and no more, because I **can’t see that renewable energy sources could give better resulting values** for energy amounts, even in 40 years.” (4.2 Science)

■ “From prospective point of view, I believe there will **not be sufficient amount of energy Germany will receive from renewable energy sources** to function properly, and it will have to come back to its nuclear powered plants.” (4.2 Science)

■ “In the short term, Germany is already **reducing its attractiveness as an industrial location**. In the medium term who knows.” (4.2 Administration)

■ “Again if you think of **industry** then **having access to affordable energy is a very critical part of it**. That is the part where Germany has to be very careful [...]” (4.2 Administration)

■ “The only thing you may say is that probably **the type of industries which come up will be little different**. Maybe you will say not this kind of industry maybe some different kind of industry will come up and remember that renewable energy itself generates its own industry. It is an industry of its own.” (4.2 Science)

7 APPENDIX



7.1 PARTICIPANTS



	Russia	India
Target groups	Experts with knowledge of Germany's energy transition from the following sectors: <ul style="list-style-type: none"> • Business • Politics • Administration • Science • Civil society 	
Methods	Structured telephone interviews	
Interview dates	November to December 2013	December 2013 to March 2014
No. of interviews	27 interviews	27 interviews
Interviews conducted by	Bashkirova & Partners	RNB Research
Coordination / Evaluation	infratest dimap Berlin	

Russia

	Business	Parliament	Administration	Science	NGOs	Total
Number of expert interviews	5	6	5	5	6	27
Sex						
Male	3	6	3	5	5	22
Female	2	0	2	0	1	5
Age of respondents (average)	43.5	55	53.5	59	41.5	43.5
Education of respondents	100%	100%	100%	100%	100%	27
	College degree	College degree	College degree	College degree	College degree	

India

	Business	Parliament	Administration	Science	NGOs	Total
Number of expert interviews	6	4	6	6	5	27
Sex	Male	Male	Male	Male	Male	27
Age of respondents (average)	46.5	53.5	52.5	49.7	52.8	50.7
Education of respondents	PhD (3), BE (2), MBA (1)	College Degr. (1), BA (2), LLM (1)	PhD (5), BE (1)	PhD (5), MBA (1)	PhD (2), MBA (3)	27

7.2 SCRIPT FOR STRUCTURED INTERVIEWS

1. Knowledge of the Energiewende

1.1 How did you first hear about Germany's "Energiewende"?

Additional question if the conversation falters or if respondents do not mention the following points themselves: Did you actively find out about the German "Energiewende" yourself? If so, which sources did you use?

1.2 What do you think Germany hopes to achieve with its Energiewende? What are its aims?

2. Perception / evaluation of the Energiewende

Information module 1

In late 2010, the German federal government drew up an energy concept that will see electricity production in Germany move largely to renewable sources by 2050. Apart from switching to renewables, the aims of the "Energiewende" include significantly reducing harmful greenhouse gases, lowering energy and electricity consumption, boosting energy efficiency, and reducing energy consumption in buildings. Germany also decided to phase out nuclear energy by 2022 following the disaster caused by the damaged nuclear power plant in Fukushima. Following the Bundestag elections in September 2013, politically nothing stands in the way of continuing the "Energiewende".

- 2.1 a) In your opinion, what are the positive aspects of Germany's Energiewende?
- b) In your opinion, what are the negative aspects of Germany's Energiewende? What criticisms do you have?
- c) Do you see Germany's switch to renewables as a normal development or rather as something extraordinary?
- 2.2 How would you evaluate the implementation of the German Energiewende at a political level?
- 2.3 How would you evaluate Germany's Energiewende with regard to...
 - a) Securing the energy supply in Germany?
 - b) Environmental concerns?
 - c) Its economic feasibility, i. e. its costs and affordability?

3. Benefits of Germany's Energiewende for the surveyed country

- 3.1 Let's talk about your country now. What is the situation there? Which energy-policy aims do you think should be pursued in *[COUNTRY]* during the coming decades?
- 3.2 a) How might *[COUNTRY]* benefit from the Energiewende in Germany?
- b) How might the switch be disadvantageous for *[COUNTRY]*?
- c) Would it be possible to carry out a similar Energiewende in *[COUNTRY]*? If so, what form could this take?

Information module 2

A variety of measures are being planned in order to implement the Energiewende in Germany. These include expanding renewable energy production, improving energy efficiency, and increasing transparency and public participation to achieve a high level of acceptance among the population.

3.3 Which of these measures could be implemented in your country? And why would they be suitable for *[COUNTRY]*?

4. Outlook

- 4.1 How would you evaluate the long-term benefits of the Energiewende for Germany? How do you think the Energiewende will affect Germany's competitiveness?

Additional question if the conversation falters or if respondents do not mention the following points themselves: Where do you see long-term opportunities for Germany? Where do you see risks?

- 4.2 In pursuing the Energiewende, Germany is thinking 40 years ahead. How would you evaluate this kind of long-term thinking in energy policy with regard to Germany's future as an industrial country?

5. Statistical information

To conclude, I would like to ask you a few questions for our statistics:

- 5.1 Sex of the respondent:
Male
Female
- 5.2 May I ask how old you are?
- 5.3 What is your highest level of education?
- 5.4 *[BUSINESS target group]*: Please could you tell me how many people work in your company in *[COUNTRY]*?
- 5.5 *[POLITICS target group]*: Note to interviewer: Please enter the name of the party to which the respondent belongs. (Do not ask!)

Thank you for taking the time to talk to us!

7.3 OVERVIEW OF SURVEYED COUNTRIES



India

Surface area: **3,287,000 km²** (around nine times the size of Germany)
Population: **approx. 1.2 billion** (2011 census)
Gross domestic product: **€1,194 billion** (2012/2013)
Share of renewable energies in primary energy consumption in 2013: **1.97%**



Russia

Surface area: **17,098,200 km²**
Population: **143.3 million**
Gross domestic product: **€1,569 billion** (2012)
Share of renewable energies in primary energy consumption in 2010: **2.9%**

Imprint

This document and all of its contents are protected by copyright. Further utilisation of any content must be authorised by the Konrad-Adenauer-Stiftung e. V. This applies particularly to copies, translations, microfilms, and any saving or processing of this document on electronic systems.

First edition

© 2014 Konrad-Adenauer-Stiftung e. V.
Sankt Augustin/Berlin

Project coordination:

Dr. Christian Hübner

Environmental, climate and energy-policy coordinator

E-mail: christian.huebner@kas.de

Publisher:

Konrad-Adenauer-Stiftung e. V.

Department of European and International Cooperation
10907 Berlin

Information on translation

This survey is translated. The German original version was published under the title "Wahrnehmung der Deutschen Energiewende in Schwellenländern. Teil 2 – Ergebnisse einer qualitativen Expertenbefragung in Russland und Indien", available at: <http://kas.de/wf/de/33.38988>.

Images: © Aleksandar Mijatović/Envato (cover), © Pedrosala/Envato (9, 17), © Facundo/Fotolia (33), © Pilens/Envato (43), © Tlorna/Envato (69), © Dolgachov/Envato (77)

Translation: ENGLISH EXPRESS, Berlin

Design: racken GmbH – Agentur für nachhaltige Kommunikation, Berlin

Illustration: nonymos | Kommunikationsdesign. Berlin (22, 27, 38, 40, 50, 70)

Printing: Bonifatius GmbH, Paderborn



Printed in Germany.

Printed with the financial support of the Federal Republic of Germany.

www.kas.de



www.kas.de

